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Welcome and Opening Remarks:

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Keynote Address:

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Special Envoy and Coordinator for International Energy Affairs
U.S. Department of State

PANEL 1: INTERNATIONAL ARCTIC DEVELOPMENT:

Moderator:

DAVID GOLDWYN
Nonresident Senior Fellow, Energy Security Initiative
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Panelists:

JULIE GOURLEY
Senior Arctic Official
U.S. Department of State

PETER HARRISON
Director of the School of Policy Studies
Queen's University (Canada)

ALEXANDER PELYASOV
Director, Center for Northern and Arctic
Economies
Council for the Study of Productive Forces

RITVA KOUKKU-RONDE
Ambassador of Finland to the United States

PANEL 2: ENERGY DEVELOPMENT IN ARCTIC ALASKA:

Moderator:

CHARLES EBINGER
Senior Fellow and Director, Energy Security Initiative
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Panelists:

JIM AYERS
President
Alaska Strategies

AMY SPARCK DOBMEIER
Senior Advisor, Government and Community Affairs
North Star Group

STEVE PHELPS
Manager, Exploration and Appraisal
Shell Alaska

MEAD TREADWELL
Lieutenant Governor
State of Alaska

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P R O C E E D I N G S

MR. EBINGER: I just wanted to welcome you all here. I particularly wanted to acknowledge the presence of Senator Warner and Lieutenant Governor Treadwell from Alaska and a lot of our distinguished guests who have been very kind to come from afar -- from Russia, Scandinavia, Canada -- and, of course, many guests from Alaska. And we're very thankful for your attendance today.

I'm Charlie Ebinger. I'm the director of the Energy Security Initiative, and this is our kickoff program for what will be an 18-month project looking at a whole slew of events, not just energy as we're discussing primarily today, but we will look at the whole implications of climate change, on the changing Arctic environment in terms of impacts on indigenous peoples, the possibility of new international maritime routes developing not only as people frequently talk about across Russia and through the Canadian Arctic, but, increasingly, projections of actual over-the-Pole maritime routes. As climate change progresses, we will be looking at ongoing divisions that still exist over continental shelf boundaries and a whole slew of other issues.

The Energy Security Initiative, which falls under Brookings' Foreign Policy Program, is doing this project in concert with other groups in our foreign policy project, including the Project on Internal Displacement, which will focus on the impacts on the native peoples; our

21st Century Defense Initiative, known as 21 CDI; our Managing Global Order Initiative, MGO; and we are also doing portions of this project in concert with the Hoover Institution, with which we're quite delighted to continue a working relationship we started last year.

The Arctic, and especially the U.S. Arctic and Alaska, is a subject with which I have personally been involved for decades. In fact, Governor Treadwell and I were reminiscing that we first knew each other back in the early '80s in Alaska when we were both young men.

And I see Carlos is here, so I will skip any further introduction and move -- welcome, Carlos.

Ambassador Pascual is the State Department's special envoy and coordinator for International Energy Affairs and was appointed to this position on May 18th last year. In this capacity, he advises the secretary on energy issues, ensuring that energy security is advanced to all levels of U.S. foreign policy.

Prior to his appointment, Ambassador Pascual served as the United States ambassador to Mexico and of course was, previously to that, vice president and director of the Foreign Policy Studies Program here at Brookings. And I can say that having had Carlos hire me I think that was his singularly most important act while he was vice president. (Laughter)

During his extensive career in public service, the

ambassador has held positions in the Department of State, the National Security Council, and the United States Agency for International Development. He has also served as U.S. ambassador to the Ukraine; special assistant to the President; and NSC senior director for Russia, Ukraine, and Eurasia, and director for the same region. He has served on the boards of directors for the National Endowment for Democracy, Freedom House, and Inner News Network.

And it is with great pleasure that I introduce my friend, mentor, and former colleague Ambassador Pascual.

AMBASSADOR PASCUAL: Charlie, thank you very much. It's a pleasure to be here, a pleasure to be back here at Brookings once again. It's a familiar place to be.

It's exciting to see what you put together, and I congratulate you on the work that you've done on the study on the Arctic. When we were working on putting together the Energy Security Initiative many years ago, one thought about different topics that one could focus attention on that were critically important. This is really one of those examples of how some issues come together from energy, from geopolitics, from the environment to climate change. And so I'm extraordinarily pleased that you've been doing this work and I have an opportunity to have a chance to comment and leave you with some ideas and, in particular, ask you for some feedback.

I also have to acknowledge another friend and colleague of ours here at Brookings, Strobe Talbott, the president of the Institution, because in fact Strobe is actually critical to the establishment of the Arctic Council. Throughout the 1990s, as we were working on many issues in the former Soviet countries -- I at that point was working at the White House -- it was really Strobe that was the absolute driver who recognized how important this issue was and the ability of creating that capacity within the U.S. Government and engaging with our partners internationally. So, the linkages back here to Brookings in many different ways go a number of directions.

I want to say a couple of words about just the bureau that I'm working on right now just for a matter of context. In May of last year, when I came back from being ambassador in Mexico, Secretary Clinton asked us to create in the State Department a Bureau on Energy Resources. That Bureau was officially launched and created in November. We now have about 55 people.

We're organized around these three lines. We have three basic objectives that guide the way we operate and we work. One is essentially -- the first column -- managing geopolitics of energy. Think about it as the energy world that we have today. Eighty-five percent of it is hydrocarbons. It has massive implications for wealth and power. If we don't manage that aspect of it well, we will never get on to the future that

we need to build.

The second piece, on energy stimulating markets for energy transformation, is on how you create the demand factors that create the demand for renewable energy, clean energy, energy efficiency technologies. In other words, how do we build the energy world for the future? And how do we incorporate those policy issues into our dialogue with other countries? And how do we also factor in the financing factors, the stimulants that are going to create the flow of hundreds of billions of dollars of capital that are necessary to achieve this kind of transformation?

And finally, the third column is on energy transparency, governance. In some ways, I would actually call it energy poverty. And there are two types of energy poverty: one is with countries that actually have energy and don't use it to benefit their populations, and the other is with countries that actually don't have energy resources or access to energy resources where their populations don't and how do we address these. And so that's been the mandate that we've been given. How do we bring a focus to these issues in the State Department? How do we make it a mainstream part of the policy that we undertake? How do we engage effectively with our colleagues in the Department of Energy, the Department of Commerce, the Export-Import Bank, the Overseas Private Investment Corporation, USAID to achieve a much greater impact and result on these specific energy issues but, in fact, also taking into account

so many of the environmental concerns, and you'll hear from one of my colleagues, Julie Gourley, from the Office of Environment and Science in the State Department.

So, that's the context for where I'm coming from.

So, let me come back to the Arctic. It's striking to me, because it's an issue, as I was mentioning before, where the geopolitics are so key. The impact on global markets, both gas and oil and rare earths, is potentially huge. The implications for climate change in an irreversible way are phenomenal. The consequences, if there are spills, for environmental damage are huge. And then there are obviously huge social dimensions of these issues as well. And all of this has to be taken into account into a set of policies that make sense. And you can't separate out pieces of it without taking into the account the whole, because then you just simply make mistakes. And so that's part of the challenge that I think we have to address in the discussions that we have on these issues.

And while we have eight countries that are fundamentally involved in driving or have access to the Arctic itself -- the United States, Canada, Greenland, Iceland, Russia, and the Nordic states -- it's something that has global implications. And so while we're going to talk about part of the responsibilities of the Artic Council for governance responsibilities -- and I know that you're going to be talking about that later

-- we have to think about it from the perspective that it's not just those eight states, but we have to keep weighing what are the implications for the rest of the world as well?

As we do this -- this is the key point I want to leave you with -- how do we strike the right balance between preservation and development? On the one hand we know that the potential for economic development on energy resources, on fishing, on tourism, on rare earths is potentially huge. And, at the same time, where does it stop? And how do you draw lines? And one of the questions that we have to ask ourselves is: What are some of the issues that become irreversible if you go too far? How do create the right guidelines to be able to take you into the future? And what we have to recognize is that it isn't a theoretical concept; it's already started. These are concessions in Norway that are in the process of being developed, and so we need to look at this from a practical perspective of today but even more of what's going to continue as we go on to the future.

Part of the reason that these opportunities ironically are being created is because the Arctic ice is in retreat. And what we've seen over time is a receding of the caps, and it's reached its peak low here in 2007 -- over here actually. I'm getting confused now, Natasha. Help me explain the 2007 low peak and the other bottom points that we have on here.

SPEAKER: That's a volume measurement, not an area measurement.

AMBASSADOR PASCUAL: Right, okay, good. Thank you very much.

SPEAKER: The volume is receding.

AMBASSADOR PASCUAL: So, the volume has been receding and reached its low peak in 2007. And one of the impacts, the implications of what it's been having is, first of all, it allows you to move, and what we saw was that in 2011 the first Russian supertanker was able to move and travel through the northern sea route. The implications would be to cut the travel time from 37 days to 21 days, the comparison of the two routes that you see there. And so that, as a starting point, becomes one of the implications for the benefits. In addition to that, it's allowed and opened up the possibilities for greater exploration.

What you see on the left are undiscovered oil reserves, on the right undiscovered gas reserves. USGS did a survey in 2008, which left us with the estimates that the Arctic contains 13 percent of the global undiscovered oil reserves and about 30 percent of the undiscovered gas reserves. And so from an economic standpoint, it starts to tell you that, okay, the possibilities here for exportation are huge. Some of that is beginning.

In 2008, there were concessions that were awarded to Shell,

ConocoPhillips, Statoil, Repsoil, and Eenie. They won exploration leases in the Beaufort and the Chukchi Seas.

In 2011, Shell received a conditional federal approval for six exploratory wells, and in February of this year the Bureau for Safety and Environmental Enforcement approved the oil spill response plans. In approving those, Shell had to make significant changes from what their original plans were in order to be able to assume a possible discharge that was five times that of what they had in their original plan, part of the results that we see with Macondo. So, that drilling process is supposed to begin this summer with a shortened drilling season that's supposed to last about three months to avoid the icy conditions.

The other constraint that we're going to see on development, of course, is cost. You don't want to rely only on that, but analysis that was done by the IEA from 2008 shows us the range of estimates of what the price of oil would have to be in order to make development in the Arctic commercially viable, which from this in 2008 prices shows us that it would be more or less there as commercially viable, but at the same time what we're learning is through technological development some of those costs are coming down. And so what we have to expect is that as costs come down the potential for greater exploitation is going to increase.

That's one of the reasons -- and I imagine with this crowd you've talked a lot in the past about the Law of the Sea, but I hope one of

the things that you can give some reinforcement to is why the Law of the Sea is so important at this time and why it needs to be ratified.

Secretary Clinton was again justifying it before the Senate on May 23rd. It's critical to securing U.S. economic rights. We're the only one of the Arctic states that hasn't ratified the Law of the Sea right now. It's something that could have huge benefits for the United States. We have the second largest coastline in the world. It's a huge opportunity for creating a legal framework for the development of our resources and protecting them. And it gives us a fundamental tool that we can use in international politics whether it's in the Arctic Sea or in disputes that arise in the South China Sea. From an economic perspective, an environmental perspective, from a security perspective this is an absolute win and the Arctic is a great indication of why that is so critical.

Now, the parallel side to that economic development that I want to touch on is the climate change and environmental considerations, because increasingly what we're seeing is that we can run the risk of getting to that point of irreversibility or tipping points, especially as we see the greater release of particulate matters, such as black carbon, that could arise from ships that are traversing the Arctic and if we get some form of a feedback effect as a result of that black carbonate causing greater meltage as a result of methane gases increasing in their emissions, getting a feedback loop that accelerates this process.

One of the places that we have to continue to monitor that is in Greenland where over time we've begun to see a shrinkage of the ice sheet, and the estimates that we've seen thus far are that if you lose 10 to 20 percent you never can get back to the former size.

I imagine that's one of the points that, Julie, you'll be going into in more detail, and I hope that this question of the irreversibility is one that we can give greater attention to.

On the geopolitical side, the Brookings report I think did a good job. It's great for me to be able to cite this, because you talk about the sensitivity of classified matter and information. So, I can just say that in the Brookings report there are indications of different actions that have been taken by a range of countries that are increasing their military presence in the Arctic. We saw one dramatic effect with the Russians at one point planting their flag in the Arctic. We see interesting signs of cooperation of a U.S. and Canadian ship in a disputed border zone going side by side to obtain subsidy data.

Thus far, that potential for conflict, geopolitical conflict, has been relatively contained. It's something that we have to manage. It's not something that we want to be able to just simply count on and that soon it's going to be.

And as a result of that, it's been such an important factor that we've had the Arctic Council as a key form of governance that includes all

of the states in the Arctic, a number of observers, a number of private and indigenous groups that have been participating on a whole series of issues from long-term planning to the participation of local indigenous groups that have been affected by developments in the Arctic.

I would just underscore the importance of the work that has been done on the preparatory side and on the preventive side of energy, because part of the task that the Arctic Council has faced is how to bring together states, how to bring together regulators and the private sector to be able to create a regime that people can understand and would ensure the kind of preparedness that is necessary in case there is an actual spill.

So, here's what I want to close with and leave you off with, which is essentially the point that I started off with earlier. If you have great benefits and exploitation in oil, gas, mineral, shipping, logistics; if you have these environmental challenges from climate change to the environmental impacts; if there's a spill to the potential irreversible effects; if you begin feedback cycles that cannot be stopped, where do you draw line? How do you assess this? And what kind of analytic process to we go through so that we build that in to our policy and we're not reacting when we're on the wrong side of irreversibility?

That's the key thing that we have to keep asking ourselves, and if, from this discussion and from the ongoing work, Charlie, that you do here at Brookings and with others in the community, if you can extract

more items to us on this particular point, you'll be doing a great service to those of us in the policy world but, even more importantly, to everybody who has a stake in making sure that the Arctic is preserved.

Thank you very much.

MR. EBINGER: Carlos has time to take a few questions. The floor is open. Would you please identify yourself?

AMBASSADOR PASCUAL: Please.

MR. WARREN: Rob Ward from DYCOR.

Would you care to discuss the emphasis by Russia on the Eastern passage through the Arctic? Is that feasible, and how rapidly is it developing?

AMBASSADOR PASCUAL: I don't know how rapidly it's developing. Let me put this in a slightly different context. I remember actually on this stage some time ago -- it was in 2009 -- when we were having one set of discussions with a range of participants and there was somebody from the Coast Guard, and he was speaking quite from the heart. And he said, you know, I really don't know anything about climate change, but I'll tell you, we've been navigating through areas that used to just be ice. And the point that we have to keep dealing with here throughout all of the transport routes that we may be looking at is, one, you have the effects of melting and, second, you have the impact of icebreakers that are increasingly brought into the region. And the two

have an interactive effect: the more that you use the icebreakers, the more that you create the potential for warming and for meltage, which will lead to a cycle of increased traffic in the area.

And so the critical point that I would point to is that whether it's from a military perspective or from a commercial perspective, for all of the countries that are involved, there's a real process, there's a real interactive process here that we have to be sensitive to. And being able to document that, assess the process of change and understand what the right kinds of policies are, to take the right kinds of preventive measures is absolutely critical at this time.

MR. EBINGER: Yes, ma'am.

MS. CAMPBELL: I'm Kim Campbell. I'm with the U.S.-China Academic and Security Review Commission.

You mentioned, Ambassador, twice in your presentation where you said that an increasingly open and accessible Arctic has huge implications for rare earths, and I was wondering if you could elaborate on specifically what those implications are.

Thank you.

AMBASSADOR PASCUAL: I don't have the data on what the reserves are or the possible findings are on rare earths. One of the challenges that we're going to face as the areas open up is what kind of assessments can be done to better document what the resource base

would be. So, the preliminary estimates -- and I don't know if any of the panelists who are going to be speaking later have any better estimates on the availability of rare earths, but one of the estimates is that it will be one of the key resources that could be available. How that plays out in the competitive market vis-à-vis China is obviously an important question right now, which is the supplier of, what, over 90 percent of rare earths on the international markets today. Is that something that you --

MR. EBINGER: No, all I can add to that, and you probably know this better, is that apparently Greenland has been one of the places where there is particular interest and the Chinese have actually been in Greenland looking for rare earths, but.

Anyone else? Anybody? Okay.

AMBASSADOR PASCUAL: Chuck, thank you.

MR. EBINGER: Thank you very much.

AMBASSADOR PASCUAL: All right.

MR. EBINGER: Let me just say, while David Goldwyn is coming to the fore, David, of course, preceded Carlos as the Secretary's Special Advisor on Energy. And we are delighted, since he left that position, that he has now joined us a Senior Nonresident Fellow.

MR. GOLDWYN: Good afternoon, everyone. And, as always, Ambassador Pascual has crystallized the issue in an eloquent and

a succinct fashion. And in our panel today, we're going to talk about these issues of international development in the Arctic.

It's clearly an area of important focus for the United States. And the U.S. Geological Survey that came out a few years ago showed that there is tremendous potential for oil and gas, as well as minerals.

Every littoral state in the Arctic region has its national policy of either recent or relatively recent vintage to talk about what its national priorities are. And if you aggregate the list of priorities, there are several. There is national security, economic security, empowerment of indigenous peoples, environmental protection, resource development, shipping, science, and international cooperation. But not every country has the same list.

And also, as you heard from Ambassador Pascual, and as we'll hear from our Russian colleague in a minute, there are great differences in the resources themselves. Some of the resources are in shallow water, with low pressure. Some resources are in areas with ice half the year; others have no ice at all. So not all Arctic resources are the same, not all regions are the same -- and, therefore, not all of the risks are the same.

So this raises a number of questions. One is, if every country has its national policy, how much harmony is there among these countries on what Arctic policy should be?

Second, how many of these issues are really for nations to decide for themselves? How to treat their own people, how to deal with their own environmental consequences? How many are bilateral, like discussions between the United States and Canada on the Northwest Passage, and how many of them are really multilateral?

Another question is, what's the right architecture? Is the Arctic Council the right architecture to decide these issues? Or the International Maritime Organization? Or some other organization? And there are countries who are not in the Arctic Council who have views on the appropriateness of that. And how important is the U.N. Law of the Sea Treaty? And will the United States ratify it?

And a final question, as we look at the resource potential, is, in a world of growing supplies of unconventional gas -- shale gas in the United States, potentially in Europe, and in other places, offshore Mozambique, where we seem to have a tremendous amount of gas -- how economic are these technically recoverable resources in the Arctic? The Alaskan offshore is particularly oily, so there's not much question about the long-term importance of oil. But how much of this gas is likely to be developed, and in what region?

So, those are some of the questions we have. And we have a terrific panel to review these issues.

Julie Gourley, on my right, is the Senior Arctic Official for the United States, and is our representative to the Arctic Council.

Alexander Pelyasov is the Director of the Center for Northern and Arctic Economies, the Council for the Study of Productive Forces of the Russian Federation. So is an economic geographer, and will give us an overview.

We have the Ambassador of Finland, Ritva Koukku-Ronde, who will talk to us about Finland's perspective, which is very much inclusive of other countries in the world.

And, finally, Peter Harrison, who is now Director of the School of Policy Studies at Queen's University in Canada, but he has spent 30 years in the Canadian public service, and he was Deputy Minister of NRCan, Canada's energy ministry. And he managed to shepherd the Law of the Sea Treaty through to ratification. So maybe we'll have some things we can learn from him that will be helpful for the United States.

So, we're going to start off with Alexander Pelyasov, who has a PowerPoint presentation which will give us, I think, a very helpful overview of the issues, and of the geography, as well.

MR. PELYASOV: First of all, I'm very grateful for the invitation to participate in this unforgettable event at Brookings. It's a new

experience for me, and I am very obliged for the organizers to be part of this event.

I would like to share with you some thoughts on the Arctic Mediterranean as new concept -- which, is very interesting to speculate on. And to tell you about the specificness and the regularities of this concept.

MR. GOLDWYN: Yes, we need to get your presentation on there. Govinda, Kevin, are you in the room? We need Mr. Pelyasov's presentation on the screen.

MR. PELYASOV: Yes. It's "Arctic Mediterranean, a Zonal Dimension of Globalization." We have EU dimension, Russian, American dimension, and we can hope that we have this Arctic dimension of globalization.

And it's interesting, because this zonal approach, if not --

MR. GOLDWYN: I've got it --

MR. PELYASOV: Okay, thank you. Uh-huh, yes.

And it's interesting that this zonal approach is not very typical for the American social scientists. It's more typical to think in the political terms, in the terms of cultural, but not in the geographical terms.

So, Arctic looks like a good laboratory to speculate with zonal approach for globalization.

To tell you the truth, I think that Francis Fukuyama is a great scientist -- absolutely. But he's wrong -- (laughter) -- in his book, *Trust*, because he didn't care about the geography. He told us about countries -- Japan, China, France, U.S. -- but not taking into consideration zones, south or north, Arctic, or south of the countries. He didn't matter about this.

But this is very important. When you look in such huge country as Russia, you can distinguish very clearly these zonal differences in human economic behavior. Because northern communities, they are more open, they are more tolerant, and they are more cooperative in comparison with the southern communities, for instance, in our national republics. The same is common throughout the world -- in Europe, in the U.S., et cetera. And the tradition of such geographic-less mentality is very typical for American social scientists.

So I argue to embed this factor on the example of Arctic. Because, really, it looks like a good laboratory to elaborate this topic, and to receive reliable proof that it does count.

My second point is connected with these common features of the Arctic Mediterranean, which we can take, looking at the Arctic strategies of different countries. It's a good example, and it's a good exercise of research when we look through each document, each Arctic

strategy, and try to look for some general features. And we can review some common features in these documents.

But first of all, it looks like a new fashion -- yes? In the last five or six years, each polar country elaborated its own Arctic strategy. U.S. strategy was the shortest one. And Finland and Russian strategies looked like the longest ones. But the regularity that each country has elaborated such documents is interesting in itself.

And if we look at common features, it will be interesting, too. First, trend from conversation to resource use. Twenty years ago, it was not common. It was environmental protection, conservation of resources, and that's all. Now, in every document, polar countries tells us about its desire to use Arctic resources. It's total new trend in thinking.

Second, it's, of course, adaptation to climate change. This is popular topic. And each strategy told us about this challenge.

Third is the issue of international cooperation. In Norwegian strategy, we can see the whole chapter, "our cooperation with Russians." It's interesting.

Then, of course, natives, and their necessity to embed natives in their decision-making process. It's very common.

And the last one, it's multilevel government. I mean that it's federal, national, federal, regional, and municipal level -- and, of course,

international level -- to embed all these levels, to create reliable, responsible reaction for the global challenges.

Look at the climate change. Of course, global warming and the decrease of the ice in the Arctic Ocean looks like banal use now. Which is less banal, that the rate of this decrease is unequal, and there are areas with enormous decrease of the ice, like Russian coast, and the areas where this decrease of ice is much less, like Canadian coast.

What does it mean? It means that the necessity to create new institutions is important for every polar country, but it's much more important for the countries when their coast is now meeting less ice than before.

So this is important. Ice looks like a social factor, challenging to create new institutions for the whole polar community of countries. But, of course, the most important it is for the Russians and for the European countries. This is extremely important for them.

If we look at the Arctic in general -- of course, we have a lot of similarities among Arctic countries in their strategies, but we can distinguish differences, we can find five models of one Arctic economy. And it's Canadian, American, North Atlantic, Scandic, and Russian. And the differences are great in the level of urbanization, in the preparedness

for the knowledge economy -- these factors, pro-innovative and anti-innovative.

And the other factors. This is important. Differences and similarities in one Arctic zone.

Let's look about peculiarities of the Arctic model -- of the Russian model of the Arctic economy. At least five very peculiar features: powerful industrial layer, much more than, in comparison with the rest of the countries. Biggest resource sector, largest share of urban population, strongest paradoxes, and strong difference between the Arctic and the north.

Look -- we have three kinds of cities in the Russian Arctic. It's university administrative cities, old industrial mono-profile cities, like -- which we can compare not with American or Arctic Canadian cities, but with Detroit or Wales, and the Ruhr. And so it's not typical for the Arctic, in general, only for the Russian Arctic they are typical.

And a long transition from industrial to service, and more diversified cities. This is also.

Look at these contrasts. Really, in the Russian Arctic we have the most striking contrasts. For instance, between GDP per resident, and disposable household income per resident -- for instance, for Yamalatin Omos Okruk, this difference is incredible in comparison with

Alaska or Northwest Territories, or Norwegian regions, these differences are much less.

What does it mean? It means the level of redistribution of resource went in the interest in the whole Russian Federation. This amount of redistribution is absolutely unbelievable in the case of Russia, in comparison with the rest of the polar countries.

What about Arctic and north? In America, no problem, because the whole State of Alaska is American Arctic. And Americans do not know what "north" means. But in the Russian case, this is very important, because we have this northernmost layer of Arctic, this medium layer of "north," and this third layer of the regions or territories counted as "kvozeinos,". So it's much more complicated to elaborate institutions adjusted to each layer of this external territory. It's unprecedented problem in comparison with the other polar countries.

And look how did it look in the federal policy of Russia, taken from 1980s to contemporary period? Under the Soviet era, north, northern federal policy -- not Arctic -- Arctic was a secret territory for military purposes. And I, who have been involved in this research on the Russian north and the Russian Arctic for 30 years, in my childhood and in my student years, elaborated only northern problems of the Russian

Federation of the Soviet Union, but not Arctic, because Arctic was totally for the military purposes, for the military deal, and so.

And the 1990s, when I was a federal employee, the head of the Department of Economic Policy under the Russian Federal Ministry for Northern Development, it was "north" again, but more precise Arctic issues, we have.

But in the zeros years, it was totally different. It was only Arctic now -- Arctic policy, Arctic strategy, Arctic presidential documents, and no "north," no "northern" documents anymore. So this is, of course, funny, this total turn from the "northern federal policy" to the "Arctic federal policy." And what about the north, and the northern issues? They are not very recognizable, and not very precise now in contemporary federal policy.

And concluding, I would like to tell you that it looks like Arctic zone, and the activity of the Arctic Council, of the Arctic scientific communities, and these innumerous Arctic institutions created during the last 20 years, when I was a participant of the Northern Forum Conference, first Northern Forum Conference in 1990, when Valli initiated this project in the fall of 1990. Of course, nobody of us could predict that in the following 20 years we will be -- we can see, we can meet dozens of new polar, circum-polar international institutions, like Arctic Council, like Sustainable

Development Working Group, Council of Arctic Parliamentarians, Barents-Euro Region, et cetera, University of Arctic, et cetera, et cetera, et cetera. Nobody really could predict such enormous rate of international cooperation in the global Arctic.

And, concluding, I would like to tell that it looks like Arctic can be a good contemporary laboratory of international and multidimensional cooperation for humanity -- for the scientists, for the public servants, for the cultural purposes, et cetera.

And this is very inspiring for us, and very inspiring and very provocative.

Thank you. (Applause)

MR. GOLDWYN: Thank you, Dr. Pelyasov.

So let's see what the research priorities are for this public policy laboratory that you've laid out for us.

And let me turn first to Julie Gourley, and then I'll turn to each of the other panelists for comment.

And I guess the question is, really, what, of all these issues that are before us, what are the most urgent? From a national point of view, what are the most urgent? From a multilateral point of view? And do we have the right architecture to pursue them?

Julie?

MS. GOURLEY: Thank you, David.

Well, that was a very interesting presentation by Dr. Pelyasov. I think it was particularly telling that he compared the various Arctic policies of the Arctic states. And he's right, we all sort of came out with them all at once. I think Russia was first, and we may have been second.

But they're all very similar. We've taken a look at them in the State Department, as well, and there is a lot of commonality. And I think that speaks well to the fact that we all have common interests in the Arctic, and we all sort of see things very similarly. And that bodes well for keeping the peace in that region of the world.

With that backdrop, Ambassador Pascual actually, I think, put out a really good first sort of underpinning to the Arctic, which is how do you -- you know, perhaps the top priority is how do you balance environmental protection with resource development?

I think everyone knows by now that this human wave that's coming to the Arctic, because it's opening up because of climate change, means that there is a lot more -- there's a growing impact in that region of the world that we haven't seen before. And, of course, one of the very first things that is of interest to the rest of the world is what the resource capacity is up there. And since we're, you know, reaching peak oil in

some schools of thought, and there's thought to be quite a bit of oil and gas in the Arctic, it's only natural that people are looking north to develop those resources.

And that makes a lot of sense. But, of course, we have to -- it's a pristine part of the world, it's a new frontier that no one really knows a whole lot about, except the very small cadre of scientists and politicians and policy people who focus on that on a daily basis.

So it's, of course, really, really, important that when we go up there to exploit resources, to take advantage of the shipping lanes, to look at the other natural resources, that we ensure that we're doing that in a way that protects that part of the world, because it's so important to the whole global climate system. It's important culturally to a very large group of people that live up there -- not large by global terms but, you know, 4 million people live in the Arctic. A large chunk of them are indigenous, and rely on that part of the world for their very livelihoods, and live very traditionally.

So I think a multilateral priority, and one for the whole world, is this balancing of environmental protection with resource development. Followed, in lock-step, I think, a very important multilateral goal is good governance. And that gets at -- these headlines that you see periodically in -- just a few years ago it was mostly just in the trade press, but the

headlines are showing up more in the mainstream press now, that is there this race for the Arctic that's coming, because of natural resources, and shipping lanes? And is it a Wild West? And is it an ungoverned part of the world?

And the answer, quite frankly, is no. As we heard a lot this morning, and as Senator Warner has been such an outspoken proponent, we have the Law of the Sea Convention, which is a very comprehensive legal framework for all of the oceanic areas of the world, including the Arctic. And it's a pretty good, pretty solid set of rules.

There are, of course, gaps. And where there are gaps in governance -- one of the pillars of U.S. Arctic policy is that we look to close those gaps. And we are starting that through the Arctic Council by, for example, concluding an agreement on search and rescue cooperation in the Arctic. There already were search and rescue agreements in the International Civil Aviation Organization, and in the International Maritime Organization. But there was not -- but both of those treaties apply globally, including in the Arctic. But we felt like there was a gap in how we work together as a group of Arctic states in that part of the world, since it's sort of our backyard, and we're going to be the first responders, we should probably formalize our cooperation. So that's a gap that we've closed.

There's no Arctic-specific oil spill agreement, and we're working on that now in the Arctic Council, on preparedness and response to oil spills, trying to get ahead of -- and hopefully, never have to use, but to get ahead of the potential for oil spills, now that development is coming up there. No one wants to see that happen, and I think, with the huge amount of focus that is now on the U.S. Arctic, in the offshore areas of Alaska, in the Beaufort and Chukchi Seas, and with Shell getting very close to drilling this summer, and the huge steps they've taken to put in place protections, as our government has, that the chances of anything bad happening are pretty low. But we still need to formalize cooperation among the Arctic states to address those kinds of problems, too.

I think another huge priority, multilaterally, in the Arctic is climate adaption, frankly. And we're just started, I think, all of us, as group of Arctic countries, to pay attention to that, and how we shore up critical infrastructure, and how we deal as a society with coastal communities that are falling into the ocean. And that's happening in Alaska now, and in other parts of the Arctic.

And, you know, how we grapple with the permafrost melting, which has never been an issue before. We've built -- as someone said this morning -- ice roads. We have all kinds of buildings and all kinds of local infrastructure up there that has always been reliable because the

permafrost has always been solid. And it's all crumbling now, and falling apart, and we have to deal with that. And it's not a cheap prospect. And how do we -- who pays for that? The state of Alaska can't shoulder all that burden by itself. There's not enough money, you know, 10 Alaskas to deal with that. But how do we pay for those kinds of problems that are coming our way, that are societal problems?

And, of course, associated with all of that is scientific research. And there's a lot more, I would say, just in the last 10 years, probably, a lot more scientific understanding of what's going on in the Arctic, and the whole system -- you know, the climate system, the oceanic system, the ecosystems.

But there's a long way to go. I mean, there's just enormous number of questions that are still unanswered. And we probably will never have all the answers, but we certainly have huge amounts of investment we need to make up there, and we need to do it together. No one country has all the scientific experts to do it all. We all have to collaborate on scientific research in the Arctic.

And it's been going on a long time. I think a lot of people don't know that there's been good multilateral scientific collaboration in the Arctic for a long, long time, because no one really paid much attention to that part of the world.

But it has been going on a long time, and there's a lot of great stuff. But there's a lot more that we need to do. And we need to, you know, prioritize our investments in scientific research, as well, as a group of countries. And as non-Arctic states. I mean, China does a lot of Arctic research. Japan does, Korea does. Some of the Western European countries that are not observers in the Arctic Council do. The European Union as a whole does.

There's a lot going on. And how we bring that together to the benefit of the region and to the planet, how we organize it is a big question that we need to constantly be asking and answering.

And I would say, kind of a -- just to throw out another sort of multilateral need is eyes and ears in the Arctic. Arctic domain awareness is a big, growing issue, mostly in the military establishment, but in the civilian establishment, too. The communications in the Arctic are pretty poor. I've seen maps, before, of the telecommunications around the world, and the Arctic literally is a black hole. There's not a lot of communication capacity up there, and you need communications to do everything -- to do scientific research, to conduct search and rescue operations, to know how to respond quickly, and where to go, in the case of an oil spill or another environmental emergency.

And so communications and observing systems, having eyes and ears up there to know what's going on, not for aggressive purposes, not to assume that conflict is coming, but just so we know, one day, when fisheries move into the north, and commercial fisheries follow behind, who's fishing up there. And are they abiding by whatever rules we'll hopefully have in place? Is anything illegal happening? Is drug smuggling starting? Is human trafficking starting?

Those things aren't happening now, because, you know, there just aren't too many people on the planet, there are the indigenous people and people who live in the north who can grapple with those kinds of conditions to undertake things like that. But when things melt, and things start to warm up, and the region becomes a little less harsh, those kinds of things might happen. Those kinds of criminal activities might be coming.

So, there are lots of needs for eyes and ears in the Arctic, as well, and to have a good handle on the domain. And I think that's an emerging area that our government will want to look at in the coming years, and probably everyone in the Arctic will want to do, and we should do it collaboratively, to build trust, and so that we can all rely on each other when we need each other.

Some of the things that are U.S.-specific, I would say, first and foremost is acceding to the Law of the Sea Convention. That goes without saying. Everybody in this room knows that that is incredibly important to our ability to have legal certainty for our extended continental shelf claim, to ensure freedom of navigation, and all of the things that the Law of the Sea Convention covers. It's a huge priority for this administration. There are lots of hearings going on in the past weeks, and this week. And, hopefully, we'll finally get it done.

We, of course, need a lot of infrastructure development up in Alaska, too. There was a lot of discussion about that this morning -- private sector investment, governmental investment. We need icebreakers -- you know, the Coast Guard doesn't have, and the military don't have presence in the northern part of Alaska. And if we're going to conduct law enforcement activities up there one day, we're going to need to have a permanent presence of at least the Coast Guard in that part of the United States.

And, you know, just presence generally, to project sea power, to ensure that we are capable, from a military standpoint, to support civilian activities. You know, we may, as a country, need to have more Department of Defense investment in the Arctic. There's a lot of discussion on that now in the Department of Defense, but there are huge,

huge, problems in other parts of the world that DoD needs to pay attention to, and that Congress needs to pay attention to. And the Arctic, thankfully, is not an area of conflict -- and we hope it stays that way. But that doesn't mean that we don't need military assets and military capabilities in the Arctic, certainly to support civilian activity up there, among other things.

So those are, I think, multilateral and U.S.-specific priorities. And I'll just leave it there.

MR. GOLDWYN: Great. Thanks.

Ambassador Koukku-Ronde? Let's give us Finland's perspective.

AMBASSADOR KOUKKU-RONDE: Thank you, David. I feel sort of, really, in the middle of Arctic seminar here, on having the sort of Arctic floor here (laughter). So it has been geared, definitely, to the subject.

I think the previous speakers have been really covering very well the challenges. I'm really happy that Brookings has been taking up this topic, which needs to have a very comprehensive way of looking. The issues are many-fold, practically have really economic, political, but very much environmental, very much issues of indigenous people.

At the same time, I think the challenge for all of us is how to be able to tackle the issues in a way that we keep all the time this sort of

comprehensive way of looking at the issues. Because these are very interdependent issues, like -- I think Mr. Pascual was also saying. And we have to keep up our minds that that continues to be, as well.

So it means in all action, whether it is national, regional, or international, one should have this comprehensivity in mind -- which is a challenge, I would say. I think we still are having very many issue, internally and globally. We tend to look at issues in silos. And it is incredibly difficult to have this sort of comprehensive way of looking. Because we need a lot of experts, at the same time, at the same tables.

So I would say that is a challenge. It is internationally, it is regionally, it is nationally.

Finland is an Arctic state, but we are not a coastal state. So we are not having for instance, any energy resources of our own. So we don't have any claims, either, there. But we still play an important role, since we are an Arctic state -- important role because we have an experience, also, how to have solutions in the Arctic circumstances.

I fully agree that there are several ways of looking at the Arctic area, it's neither homogenous. But, at the same time, there might be some interesting solutions which can be used very much all over.

I think one of our, and my country's, interest in any international or regional or bilateral cooperation is to look how to secure

peaceful and sustainable development. And that concerns, also, the Arctic.

We have, indeed, internal framework, we have rules, regulations, some caps -- like we have heard. But it's very important that we know those international rules, we know those regulations, and we are very much sort of following those rules.

I come from a country which is very rule-based society, so we believe that rules are made for following, not that rules are made for starting to look how we avoid them. (Laugher) This implies, by the way, some other issues, which are topical, which are not touching at this seminar. (Laughter)

The other one is really that we need to have a responsible way of tackling. I think this is an area, really, where we have, the international society as a whole, has a really great opportunity, not only challenge, but great opportunity, to look how do we do it jointly? And I fully agree, this is a cooperation, not competition in the way. Because it's a very complex, challenging area, with very many opportunities, but also challenges.

What Finland has to offer is, actually, in the area is some of our solutions. I like the idea that Finland is a small country, Arctic country, who brings in international fora solutions. I looked a little bit to the history,

and I can say that as early as 19th century we have come with all kind of innovations which are very good thinking about the Arctic area -- whether it is, for instance, how to managing in the ice. We have great icebreakers. I think the Shell corporation has just leased a couple of them in Alaska. I'm very happy to see, also, from Arctic Shipping (inaudible) here, and he is looking at opportunities for filling this icebreaker cup here, I think, in U.S., which is really needed. Because, I mean, it's not only the capability of moving below the ice, it's really that you can move through the ice or in the conditions where the ice is breaking. Please come to Finland to look how we do it. Sixty percent of the world's operating icebreakers are produced in Finland -- planned or constructed. So we know how to do it. We have a lot of cooperation here with Russia or Canada or China, and also with the U.S. in Arctic know-how. So there are great opportunities here. Multipurpose vessels, as well.

Research, in general -- in Rovaniemi, which is in the Polar Circle, we have an Arctic Information Center. And they are very will liaised with other Arctic centers. Definitely, there is enormous know-how in the area. They are doing good research, for instance, in Russia, with some of the areas, also, as to the consequences of climate change and so forth. So there are great opportunities to enhance also this kind of cooperation.

We are very much campaigning also that the Rovaniemi Arctic Center will be an information center also for the whole European Union. We are already getting some finances from the European Union.

I think one of the issues also, which we have done also very long -- it's in our genes, almost -- is sustainable forest management. And when you are in the very vulnerable areas like the Arctic area, as the northern hemisphere is, you have to be very careful what do you do with forests.

The third, I would say, is the environmental technology, which one definitely needs here in these sorts of sensible areas.

And, fourth, the meteorological services -- whether it is weather sort of related, or ice related, or climate-change related, meteorological services.

There is an interesting cooperation at the moment in the Baltic Sea area, which might be sort of copied in the Arctic area. At that moment when the sea routes are really -- in a couple of years' time, the reality, we are having together, Finland, Estonia, and Russia, a vessel traffic information system. So if you are Helsinki and you are in the center, you see in the screen everything moves in the Baltic Sea region, everything, all the vessels. You see, really, the information -- what they are having, how many people in the crew, is there sensitive sort of,

whatever substances there, and all that kind of things. And that is connected to all the other services, also, whether it is rescue services, also. So we know immediately, we know what is happening, and we know if there are some accidents or whatever. That might be, this sort of system might be applicable in the Bering Strait.

But this kind of thing needs, really, a commitment from individual companies, shipping companies. It needs, of course, taking into account the regulations of the International Maritime Organization. It needs, really, the sort of sharing of the necessary information from private companies.

But I think it is a very good example of a public-private cooperation, which is needed not only here in traffic service, but needed overall, I think. We were just talking before the seminar, with sales representatives, that this is a challenge, this public-private partnership also in the area. And, of course, that is one of the essentials for success in looking for the possibilities.

I would finally only want to take one issue which I think we haven't yet covered enough, and that is the people who are living there. I would like to emphasize the sort of "four Ps," and it means public, private, people, partnership.

The most information is among those people who are living in the areas, indigenous people. And people who have been coming later on. They have a good know-how what is happening in the area. And I think every step they should be heard, they should be included in the planning, whatever happens. And they should be part of the solutions and the future challenges.

MR. GOLDWYN: Okay. Thank you.

Peter Harrison?

MR. HARRISON: Well, thank you, Mr. Chairman. The advantage of coming last is that I can say that I agree with everything that's been said. (Laughter) And a lot has been said.

But let me begin with an observation. It's not too long ago -- like about 8, 10 years -- that if you called a meeting about the Arctic, you'd get 10 people showing up. And they were always the same 10. We used to call them "the groupies" -- right? And I exaggerate a little for effect, but one of the -- I think the amazing things that has happened in the last little while is, in fact, this extraordinary interest, worldwide, in the polar regions, and particular in the Arctic.

Why is that? I put it simply elsewhere, that I think interest in the Arctic is heating up because the Arctic is heating up. And you might say that that's a bit of sophistry, which it probably is, but if you can't get

somewhere, then you don't have the possibility of doing something. The people who have always lived there always had that possibility.

And so this concept -- and, I think, to follow on, Ambassador, from your last point -- this concept about accessibility, and things opening up, is a southern concept. It is not a northern concept. It is not one of the people who live there.

And I think that this is critically important as countries look at different dynamics -- domestically, as in the case of Canada, but also internationally. And that southern potential imperialistic look at things I think is one of the biggest challenges that we have.

And this plays itself out in a number of different ways. And it also plays out at the international level. I think it's a major step forward that the Arctic Council includes the six indigenous permanent representatives. Correct me if I'm wrong, I think this is the only international group of its kind, multilateral group, where indigenous people sit at the table. They don't have a vote, but being at the table, and being in the corridors is important.

So this concept about what is happening in the north I think is something that is critically important to look at.

There's no question in my mind we need a comprehensive look at the tendency, both in policy, and in analysis, and in science has

tended to focus on particular issues. But how does all of this, how does all of this fit together?

And so I'd like to add a couple of challenges that I think that we see, and particularly from the point of view of Canada -- challenges and opportunities.

This place is big. I'll say that again -- this place is enormous. And it's extremely vulnerable. And it is very little understood scientifically. So if you put that into a policy context, I think it leads you very quickly to things like the precautionary approach, and so on.

We accept the myth that all of the ice is disappearing and opening up, and so on and so forth. These remain immensely dangerous places. I'm talking particularly, here, about the Canadian Arctic. Anybody who thinks that the Northwest Passage in July and August, September, would be like Lake Michigan, is dreaming in Technicolor.

I think there needs to bit of a caution about, "Yeah, this is all opening up, and we're going to sail through, then -- " -- this, and the other. Very few ships have gone through the Northwest Passage. Totally, about 110, 111, and most of them are our icebreakers or somebody else's icebreakers.

So I think there's a need to think through how that plays through -- particularly in terms of resource development.

The advantage of the melting ice is greater access, longer seasons to be able to deliver and support communities with the sea-lift, greater access to resources, and so on.

It also means shorter seasons for ice roads -- which, in Canada, is terrifically important for communities and for mining. Now, if you're a mining company, and your ice road is two, three weeks shorter than it was five, six years ago, your bottom line is affected directly. And some of the stuff you can not fly in.

So I'm trying to suggest here the complexity of so many of these things that are going on.

I mentioned that, you know, interest has heated up. I'll give you another personal observation. I remember in 1996, the Ottawa Declaration that created the Arctic Council. I'm giving you my view. Anybody could have joined, but it was a sideshow -- oh, who wants to join the Arctic Council? Now we see the pressure for observer status, and for membership.

So I put that on the table that it's not only the environment that's changing, we're changing. And geopolitics is changing, and interests are changing.

The situation that we see in Canada is obviously somewhat different. And I think we've heard that the variability -- do not assume that

the Arctic is the Arctic is Arctic -- that the variability is absolutely extraordinary. I mean, depending on how you count it, 25 percent of the Arctic, particularly the high Arctic, is in Canada, but 40 to 45 percent of Canada is in the Arctic, or the sub-Arctic. And so this is important.

It's interesting though, if you look back -- and we've spoken about going back to the DEW line, and the Second World War, and all of that business, the relative lack of interest by Canadian governments in the north -- we've seen this changed in the last five to six years, with the current government.

And why is that? Well, a number of things. This idea of access.

Secondly, we know more about these areas.

Thirdly, the resource base, that we knew little about, is turning out to be really quite extraordinary. Yes, indeed, rare earths, if I may.

But the other thing is governance. There's a tendency to talk about governance very much in an international sphere--and I think that's important, and I think we recognize the Arctic Council. One of the untold stories in the Canadian situation is that in the last 30 to 40 years, the entirety of the Canadian north, with some exceptions in the Mackenzie Valley, has been the site of land-claim settlements with indigenous

groups, first-nations, Inuit and Aleut, which lay out constitutionally protected rights, as well as benefits, and so on.

And the reason that I mention this is because -- I'm showing my age -- but I remember discussions with resource development companies back in the late '70s, early '80s, who said, "We need certainty. Get these land claims settled." And it's the same gang who've been coming in in the last couple of years, saying, "This is complicated."

Sometimes the tradeoff is, in fact, in that direction, complexity. But this has changed significantly the resource development face of the Canadian north. We see the government of Ontario, in northern Ontario, focusing on what's known as the "Ring of Fire." We see the government of Quebec focusing on "Le Plan Nord." We see the government of Canada with a northern strategy.

But woven into that is very much the legal, constitutional basis of the land claims. The game has changed. And the game, in my view, has changed for the better.

Science has changed. The era -- and we saw this during the International Polar Year -- the era when a scientist can go and do the research, head south, and that's the end of it -- typically, middle-aged white males from southern universities -- is over. There's still a lot of work to be done, because the communities who control access to the land, the

permitting system, are saying, "You've done this study. Please come back and tell us what you found." "Please involve us in the process."

And I remember an elder in the western Arctic saying to me one day, a number of years back, he said, "Peter," he said, "You know, in the spring the geese and the scientists return." (Laughter) "And in the fall, the geese and the scientists leave, and we're sad to see the geese go." (Laughter) A very powerful story.

And what we found during the International Polar Year, with people coming from all over the world, was actually the need to work out this new relationship with many people in very significant places.

So, with that, I would just like to say -- you ask what is the key question? I think the key question is the dramatic change that is taking place, particularly because of climate change. And I'm not going to debate as to why it's happening. The communities there know that this is happening, and that it's circumpolar in nature, and that is an area where we need to work with the communities to find solutions that will work for them, not solutions that will work for us.

Thank you.

MR. GOLDWYN: Thank you.

Let's have a little bit of a lightning-round, where we can ask some questions about countries, in particular. Because I want to leave a good, solid 20 minutes for question and answer.

And, Alexander, I'm going to start with you, with two quick questions about Russia.

One, we've seen some creative symbolic diplomacy with the flag on the bottom of the ocean floor. So the question is whether Russia will plan to abide by the Law of the Sea process for settling claims?

And the other question is, it's economic -- which is, in this world of shale gas, and Russia's on-shore resources, and Shtokman, is gas in the Barents really economic and likely to be developed? Can Russia complete economically?

Two easy ones for you.

MR. PELYASOV: Thank you for your question -- questions, in fact, two questions.

Well, my guess is that this business with flag was very useful for the rest of polar countries, because all of them were inspired by this claiming sovereignty on the Arctic, and they immediately decided to proclaim their own strategies, and their own interest for this territory. So it was like the beginning of the very useful -- for the scholars, for the political scientists, and for the whole polar community process. That's my

understanding as a scientist, not as -- now, not as a federal employee, which I was in the '90s.

As for the second questions, about resources and the destiny of the -- and the role and destiny and problems of the Arctic resources in the Russian economy.

Of course, the burden of this -- the role, the financial role, of Russian oil and gas in the federal budget is very critical. This is on the one hand, it's the possibility to be very generous with retired persons, with students, in social policy of the country, which is good. On the other hand, it's like a barrier to be more creative, innovative, to go more rapidly to the knowledge economy.

And to tell you the truth, I cannot answer what about the balance of these advantages and disadvantages of these enormous resources. But I can tell you honestly that, until now, we do not manage to convert in a very creative and smart way, these resources as an engine to the new knowledge economy. To tell you the truth, this is the situation.

And, of course, the challenge is to do, to follow the examples of the other countries, and to create this bridge from Arctic resources to the new knowledge-based Russian economy.

MR. GOLDWYN: Thank you.

Peter, so much of Canada's resource potential depends on achieving a national consensus with either the First Nation tribes, or with other indigenous peoples in Canada. If you think of the oil routes to the west coast, Kitimat and the siting of LNG exports, even the work on the eastern shore, and now the Arctic.

This has been an area of enormous challenge for Canada in the past. Is there a new strategy, or a strategy for achieving this consensus? And how do you rate the prospects for this new infrastructure, given the challenges you've faced in the past?

MR. HARRISON: I think the word "strategy" is strong.

The reality is that the definition of rights has come along really, really significantly -- through the court system and through policy -- in the last 30-odd years. So the respecting of those rights is fundamental. So that changes the landscape.

Secondly, the ability to make sure that the people who live there benefit, whether it's through jobs, or whether it's through revenues, or whatever, is absolutely critical. And that's important for the oil companies, and that's important for the transportation companies.

And I think increasingly what we've seen is the private sector seeing that as part of their way of having to do business, rather than "this

is something where we turn to government," and "Government, you settle this."

It all depends on the rights of the area. But I think the best example, you know, the Northern Gateway, and things like that -- watch this space -- the challenges that could come on that, I think, personally, could be significant.

But the best example is the Mackenzie Valley gas pipeline -- you know, the one that's bringing all of this gas down from the Mackenzie delta. It does not exist yet. I mean, when I was a graduate student, six million years ago, the Mackenzie Valley gas pipeline was about to be built.

And there are several reasons why it wasn't. In the first instance, the government of Canada of the day, in the '70s, asked Justice Berger to do an inquiry. His mandate was, "Please advise us as to how this pipeline can go ahead." I'm summarizing his mandate, which was 50 pages long.

His conclusion, much to the joy of the government of the day, this should not go ahead until two things happen: land rights and indigenous rights are settled through land claims, and you sort out your environmental side of things.

And for many of the indigenous leaders who were against the pipeline at that point in time, in the last few years, in fact, have been

very much for the pipeline, because the land claims have been settled, and arrangements have been made for equity participation, this, that, and the other -- which is a good way of doing business.

Why has it still not happened? Not everybody's in agreement and, in the meantime, lots of folks probably sitting in this room have gone out and -- I have to be careful how I say this -- we've invented fracking. And the shale gas has been (indicating).

And so this has got nothing to do with the law. It's got entirely to do with economics, and what is happening. And you face the same thing with your resources in Alaska.

But the fundamental thing here is the role that indigenous people play, because of their ownership of land, and because of their rights, is absolutely critical.

MR. GOLDWYN: Ambassador, Finland has talked about the importance of bringing the EU and others into the Arctic Council process, that it needs to be inclusive. There are calls for non-state actors.

Would you change the composition of the Arctic Council? Would Finland call for a sort of a change in its charter?

AMBASSADOR KOUKKU-RONDE: First of all, I think that the Arctic Council has been so far a very successful council. And it has been discussed earlier whether we would need a sort of Arctic Council

under the purview of the United Nations. But, probably this is a more efficient of doing it in a regional sense.

From the Finnish perspective, we are an Arctic country. Like I said, it's very important that all the Arctic countries are in the Council, like we are -- not only the coastal countries.

We have been also able to create various sorts of mutual cooperation, I would say. One of the -- I think that one of the merits of the Council is that there is a very good cooperation between the council members and those who are also with -- and I would also like to emphasize that it is a very particular forum, council, where you have also representatives of indigenous people, and you have observers on board.

Finland has had very practical view on that, on the observers' status. I think we have to be pragmatic in the future, also, that those issues where you need broader participation should be also discussed with the broader participation. And therefore we are looking more the issues, and the needs of those who should be on board, rather than sort of really very strict regulations on who should be there, in what status. But we have flexibility, indeed, on looking on the observer status on those who are willing to do.

There is one which I particularly like to mention, and it's the European Union, of course. Very many of the also Arctic countries are

members of the European Union, and may be becoming members. One notion to Mr. Pascual's, it was interesting -- maps are interesting, I've noticed, and I like maps. Interested in the definition -- we, in the Nordic countries, we tend to say that there are five Nordic countries, Iceland included. But there was no Iceland, nicely put the "Nordics and Iceland."

But definitely we are -- I think there is a lot of scope. Internationally, we have issues which we have to tackle in the international frame in a broader way. There are definitely regional issues we need to tackle. We have incredibly good cooperation among the Nordic states, additionally, which is feeding through the Arctic Council, as well. And we have very good bilateral cooperation. We just had a bilateral meeting with the sort of strategic partnership with Arctic issues with Russia last week, the meeting.

So there is a lot of potential for various kind of forms of cooperation. And we are -- if that increases the responsibility, if that increases the comprehensivity, if that brings the more feeling of the economic-social responsibility, those are all welcome.

MR. GOLDWYN: Terrific.

Last, Julie, what are the prospects for Law of the Sea ratification. (Laughter) And we've heard from Senator Kerry, maybe after the election so it's not politicized.

And if it doesn't happen, what's Plan B for protecting U.S. interests while the rest of this process is going forward?

MS. GOURLEY: Oh, that question is the one I hate the most. It so happens that in my office in the State Department, the Office of Ocean and Polar Affairs, is sort of divided in two. There's the Polar half, and the Law of the Sea half. And I'm in the Polar half, so I'm not an expert.

But as I hear from my colleagues, and you know, in the building, and watching around town, it seems like the prospects now are better than they've been in a long, long time. Senator Warner probably has a view about that, too.

And I think people are pretty optimistic. You know, the hearings are going on, and I think the plan is for action to happen in the Senate during the lame-duck session, to get it out of the political cycle that we're all in now, especially this year.

So I think people are pretty positive about it. But it's been decades, so I would be the last to say that it's a sure bet, and would not ever want to be held to that. But I think everyone's looking pretty positively on it for the first time in many, many, many years.

What's Plan B if it doesn't happen? That's a really good question.

The U.S. has followed the law of the sea -- you know, small "l" and small "s" -- as customary international law forever. And, of course, we would continue to do that.

We'll continue mapping the extent of our continental shelf areas off all of our coastal areas, but the piece we know the least about and that we're working hardest on is our coastal areas off Alaska. And we'll finish that.

Hopefully, we'll be a party to the treaty so we can deposit it, and have the Commission on the Limits of the Continental Shelf adjudicate it. But, if not, we'll still know where we believe our areas of the continental shelf are. And we'll work with Canada, hopefully on a fast track, maybe not, on finalizing our maritime boundary in the Beaufort Sea. We're working on that now, and I think that will pick up once Canada submits its claim to its continental shelf next year, when its deadline comes in 2013 -- I think it's 2013. And we'll continue to agree to disagree with the Canadians on the Northwest Passage. There are a lot of countries that agree with us, there are countries that agree with Canada, but it's never come to blows, and I don't think it ever would.

So I think there's -- in the absence of a Plan B, things will go on as well as they always have. That's not to say that things could not be so much better if we were a part to the treaty, because that would solve a

huge number of problems that we'll continue to have if we don't become a party to it.

But that's kind of the non-answer, I guess.

MR. GOLDWYN: Great. Thank you. That was a great answer.

All right, now we'll take questions from the audience -- questions and comments.

And since we were on Law of the Sea, Senator Warner, since you're here with us, I don't know if you wanted to make a comment, but I'd be happy to offer you the first comment if you were interested.

And then we'll take two or three at a time.

SENATOR WARNER: I'll take just a minute. In 1970, when I was Secretary of the Navy, (inaudible) Secretary's Office, and said (inaudible) over to Geneva, which was quite a relief during the War in Vietnam, to go that way instead of the other way -- and see what's going on in these Seabed Talks. And so I've been associated with the subject for a number of years.

And in my 30 years in the Senate -- I eventually became Chairman of the Armed Services Committee, I handled hearings on the subject. And I've been a fairly solid supporter.

And I thought your answer was good, but I'm a little more cautious than you are, because I get up every morning, I used to look at the birds, now I count votes. (Laughter)

I think there is a momentum forward. But that's come about by changes. Many of the changes we've discussed today -- the melting of the ice, the transiting of this area, the need, for example, to get up there and have better communications, and things of this nature.

And the bottom line, ladies and gentlemen, I think if we become 161 -- I don't know exactly the number, 160 we say, maybe 161, Canada and the EU, and so forth. If we become a party to it, and take the seat that's now vacant at the table -- particularly with deep-sea mining, you're going to have jobs created. And that's at the very heart of every American, rich or poor, in this country, is the ability to have a job, and add to the strength of our economy. And that's what's changing.

So it's a jobs bill in many ways. And in the years that we dealt with it, it would always be the good old Department of Defense, because they'd want to stop relying on the old, traditional common law of the oceans to operate, and have absolute navigation rights which are known and understand, and can be arbitrated in a forum. And, particularly, transit through the EEZs, and other things of this nature.

But it is vitally important, I think, we move forward. And I'm optimistic that the new factor, that a number of companies that are now surfacing and expressing an interest, you'd be astonished if you recognized how much of your telecommunications equipment is dependent on cabling overseas. And if those cables aren't properly maintained and the like, you're going to have trouble with just basic communications.

I yield the floor. (Laughter)

Thank you for the offer.

MR. GOLDWYN: We'll take four or so questions in a row so that we make sure we get a lot of questions in.

This lady here in the sixth row. And then the woman right across from her.

MS. JEGOROVA: Hi. My name's Natalia Jegorova. I'm with the CSIS. And I have two quick questions.

First, to Ambassador Koukku-Ronde, since you have opened the door by mentioning Baltic-Nordic cooperation -- do you believe there is any role that Baltic states could play in cooperation with the Arctic states?

And second question, since Julie Gourley has mentioned the Beaufort Sea limits with Canada, can you give any insight on how that's going to be settled?

And after that, is there any movement on the U.S.-Russia settlement, in Russian Duma?

MR. GOLDWYN: That's it. Thank you.

MS. JEGOROVA: Thank you.

MR. GOLDWYN: Lady right across?

MS. BALZER: Marjorie Mandelstam Balzer, Georgetown University.

I have a question for Dr. Pelyasov. The discussion of indigenous peoples has been very interesting today. I'm glad that they've been more than in a token way brought up. And was wondering if there could be a little bit more elaboration on the issue of indigenous peoples in the Russian Arctic and north.

MR. GOLDWYN: Thanks.

One more -- the gentleman right here.

MR. JONES: Bill Jones, from Executive Intelligence Review.

I don't know if people noticed that, I think it's obvious, that contrast between Dr. Pelyasov, and generally the Russian attitude to the Arctic, and the attitude of all the other countries. They have a very ambitious program, or very optimistic about the opportunities, and everybody else is treating it rather gingerly, as if, oh, boy, it's melting, now we've got to start thinking about it.

But I kind of tend to err on the Russian side in this respect, because I've had an opportunity of looking at Dr. Pelyasov's, his institution's report, which is a very ambitious development, not only of the development of the energy resources, but transforming the entire area -- building new universities, setting up hydrographic stations. There's a whole aspect of the Russian space program which is going to investigate the ice and the waters. And that feeds into what he said about going from an energy economy into a knowledge-intensive economy -- which I think is the real goal of the Russian program here.

And I wish you would say a little bit more about it, because this is extremely exciting. It's not just a matter of going up there to get a lot of oil and gas, but that things are going to be moving to transform the entire area, which will also give us a greater knowledge of the earth as a hole. Because that's and area which we don't know as much about as we ought to.

MR. GOLDWYN: Thank you.

Charlie, did you have one?

MR. EBINGER: Charles Ebinger, from Brookings.

There are people who argue that beyond the 200-mile economic zones, when we get in the high polar areas, beyond any individual state's claims, that this is such a unique area that it shouldn't

just be open to whoever happens to have technological capacity to deep seabed mining, or whatever, but that this should be under the Doctrine of the Common Heritage of Mankind. And there are number of landlocked states in Africa, and so forth, who have called for greater U.N. involvement in the regulation of that area.

Do you sense there's any one of the Arctic states that agrees with that position? Or is that just simply a pie-in-the-sky on the part of the landlocked members of the G-77?

MR. GOLDWYN: Thanks.

All right, I think that's a good cluster. And if can have relatively concise answers, we might be able to get in one more round.

Julie, do you want to take the Common Heritage of Man, and also Beaufort, and U.S.-Russia maritime?

MS. GOURLEY: Sure. In answer to Charlie's question -- no, I don't think any of the Arctic states agree with that.

The seabed, when it's finally mapped by the five costal states will be nearly 100 percent claimed, so there won't be much of an area beyond national jurisdiction that is not owned by someone.

On the Beaufort boundary, actually I can't give you a preview, because it's so above my head and technical that I couldn't possibly explain it. But I don't actually even know what it's going to look

like. I don't think anyone does year. We're so early in even looking at where the line might be, there's really not much happening yet.

On the U.S.-Russia boundary, as I understand it, it's up to the Duma to re-ratify the boundary, in the Senate a long time ago. And I haven't heard that there's any action on the Russian front. I don't know if anyone is here from the Russian government who could comment on that.

MR. GOLDWYN: Ambassador, do you want to --

AMBASSADOR KOUKKU-RONDE: About the question whether the Baltic states have a role.

I think every EU country has a role, of course, and therefore I was referring also that it's very good that the European Union could have an observation status. But, of course, it is the Arctic states, themselves, who are, at the end of the day, deciding who they want to be on board. And I would say that should be also respected.

The other question, whether the U.N. should have larger role, I would say that, of course, there are some other questions which exactly this sort of "Common Heritage" issue.

But I would say that at this point, this is my personal view, actually, thinking about the U.N. role, and at the same time knowing that, very strongly Finland is always supporting the United Nations' role as the only multilateral organization where all the members, all the countries are members.

But this Arctic Council still is the organization, and successful organization to tackle some of those issues which should be discussed. And I think there, like I said, we, Finland, has a very pragmatic view for opening and looking the sort of ways how to sort of develop the working modalities.

MR. GOLDWYN: Thank you.

And, lastly, Mr. Pelyasov, Russia's plan on indigenous peoples, and maybe a little bit more on the development program.

MR. PELYASOV: Well, I have one competitive advantage, using Michael Porter's term, because I'm not a politician, so I can answer the question on our natives in a more open and more sincere way, being a scientist.

A decade ago, I had a long conversation with Oren Young and Gail Oshryenka, on the possibility of their native land claims in Russia. We have been speculating on this topic. And I, personally, was sure that in the nearest decade we shall meet the reality of native land

claims in Russia, as in the rest of the polar federation, like Canada, like U.S., and Australia, et cetera.

The reality was absolutely different. This is -- I would like to tell you the truth. And in reality, we do not have land claims, multifaceted, and very long-term, and large in scale. We have very specific, very narrow agreements between the companies or oil and gas corporations, and tribes and native communities in (inaudible), but no, nothing like multifaceted, broad, long-term agreements as in Canada.

And my guess is that in the nearest future, of course it will be going in the same direction. It's special agreements, and not very comprehensive and more appropriate, to my mind -- more appropriate (inaudible). That's the truth.

But if we compare the situation with aboriginal rights, and aboriginal movement in late '80s, and now, more than 20 years ago, of course we can see enormous progress.

My friends in old Russian indigenous organization, (inaudible) and the rest, (inaudible), of course, they can prove that 20 years was a period of being more political, responsible, more success in political initiatives for the state, with the federal government, et cetera.

So the reality is multifaceted. We have misfortune of not having native land claims in Russia, on the one side. And on the other

side, we do have this very gradual, very slow, very slow progress with aboriginal movements, and aboriginal rights. This is the reality.

As for the second question, about --

MR. GOLDWYN: Rather than go into Russia's development, we might be able to do that off-line. I'm mindful of the time, that our time for this panel has expired.

Maybe just let Peter Harrison comment briefly on the Common Heritage --

MR. HARRISON: Yes, very quickly -- if people want to change the convention, then they should change the convention. And to say that a particular marine area is different from others, that is flying in the face of the rule of law.

Article 76 of the United Nations Convention on the Law of the Sea is being applied by coastal states around the world, the Australias, the New Zealands of this world, and so on and so forth. And so to change that now, I think would be -- other areas, especially, the Indian Ocean, the various dependencies of different countries in the Pacific, are they different?

So, my second point is just to remind everybody that -- I know that some of the Arctic Council members were not happy, but the coastal states, members of the Arctic Council, met in Ilulissat, in

Greenland, in 2008 -- in 2008. And all of them, including the United States, including Russia, said that the basis for moving forward in the Arctic, that we will respect, as the rule of law, that it is the United Nations Convention on the Law of the Sea.

So that statement, it seems to me, that should be taken as one of absolutely fundamental cooperation.

MR. GOLDWYN: Thank you.

Thank you, thank you to all of our panelists for terrific presentations. (Applause)

We'll take a 13-minute break, Charlie, and resume here at 3:15 for our panel on Energy Development in Arctic Alaska.

(Recess)

MR. EBINGER: And has been working on Alaskan resource issues for a very long time.

Let me begin with an open question to the entire panel and we'll see where we go from there. With Shell planning to drill off the north coast of Alaska this year, as we've been talking about, the prospects of offshore U.S. Arctic oil and gas development are rapidly becoming a potential reality. I'd like to ask the panelists what do you see as the main benefits for the United States of offshore Alaska in oil and gas development, and what in your view are the principal challenges that still

need to be overcome?

Governor, would you like to start?

MR. TREADWELL: Well, thank you. Can people hear me?

I guess I want to say the principal benefits of Arctic oil development are the things that it can do for our country and the things that it'll do for the world. As far as our country is concerned, we are still very dependent on foreign oil. We're still very dependent on bringing energy in from other nations, some of which are not very friendly to us. And the potential in the Arctic that we're going to look at, and my colleague to my right will speak about the potential more specifically, but you're talking about huge amounts of oil in the Arctic and huge amounts of oil in the Alaska province. We've gone through a process now that's over six years since those leases were issued, and billions of dollars have been spent. Upgrades have happened because of the Macondo incident, and I believe that we are prepared.

Now, at the same time while I believe that is the case, we also recognize there are risks. I sat in a cabinet at one point where we all held hands and said, yes, there is something that always could fall between the lip and the cup and you want to make sure that you're prepared. And I think we have insisted that Shell be prepared. I was on the rigs that are going and looking at the Ivick, the oil spill response

vessel, which will be part of the oil spill response vessel if that contingency comes along. But I will tell you, the State of Alaska has always argued to keep pushing the envelope on oil spill research. Oil and ice research. We should keep pushing the envelope on improving Arctic technologies, and I believe that we're at the start of something big. Something very big.

The Alaska Pipeline is running one-third full. When I was in high school and college, it was being built and began operation. It once shipped 2.2 million barrels a day; it's now shipping less than 600,000. That less than 600,000 even then is 10 percent of America's oil supply. And the potential for the country is large.

The last thing I would say is just in the context of what's happening in the North. And we had a map up before, the circumpolar area. Six of the eight Arctic countries are drilling for oil or are in the process of drilling for oil offshore. And those six countries have all come to the conclusion, one way or the other, that the environmental risks can be managed and that the benefits are worthwhile for their people. And I believe this is a place where the United States should be leading. I believe that we lead with the best technology. I believe that we lead with a significant regulatory structure that involves the people who live on the ground, as well as the state and the national government. And I think that we are at the beginning of a major province for the world where the USGS

says perhaps a quarter of the world's energy, conventional energy, is to be found. And this is something that will be significant for many years to come.

MR. EBINGER: Thank you very much. Steve.

MR. PHELPS: Yes, just to build on Mead's comments, it sounds like we think alike basically. And obviously, when Shell has invested the amount that it has in its exploration program to date over the last six years, we get the same sort of questions from our own shareholders, really. So, you know, what is the benefit of this? Why are we doing it? I think for the U.S. it's threefold. I mean, it is a contribution to domestic energy security. It is oil. We firmly believe it's oil, as I think most of industry and academia does. So there is an immediacy and perhaps not some of the tariff and subsidy challenges that getting gas out of Alaska has seen in the last 30 or 40 years. I think it comes down to jobs, and that's when scale is actually very important so that the scale of some of these opportunities, offshore Alaska. I often refer to it as it's like exploring 40, 50 years ago. I mean, the area has been off limits, you know, essentially, due to geography, harsh conditions, technology hasn't been there, low oil price in the mid- to late-90s in particular.

But the scale of success we envision, you know, could double the (inaudible). So that has benefits for the state of Alaska. It

would have benefits for domestic security. Projects of that scale, you know, have the ability to create anywhere between 55,000 and 90,000 jobs. Now, that's a lot of jobs. It's nice to actually be part of a company that says that a project could stimulate that much job growth domestically in the state and in the U.S. And then let's not forget the economics. I think the real point of the question is projects of that scale could generate $200 billion in federal revenue. They could generate $145 billion in payroll. So very, very significant scale.

MR. EBINGER: Amy, do you want to --

MS. SPARCK DOBMEIER: Hello. I am Amy Sparck Dobmeier. I am a Chevak, Alaska native of the Kashunamiut tribe of the Bering Sea. That's Chevak. It's about 50 miles inland from Hooper Bay and Scammon Bay. I'm very glad and eager to have the blessing of Julie Kitka of the Alaska Federation of Natives to come in and address you. I couldn't speak for AFN or Julie, but I can probably speak to a couple of her comments about the benefits of development.

First and foremost, Alaska Natives would want the developing company to know that what is [of] tantamount important for natives is food security, and in Alaska, that's called subsistence. That is what literally feeds you and your family through the year and that is literally what makes your culture. So that is what has sustained us for

over 10,000 years and that can't be interfered with. It has to maintain. And Julie had also referred to historically the Marshall Plan. I think in terms of opening the Arctic, a reference to the Marshall Plan points to nation building. I think at best rural and coastal Alaska can hope to maybe finally come up to par in terms of infrastructure to get actual nation building in our own state. So those would probably be the foremost benefits of development in oil and gas.

MR. EBINGER: Thank you. Jim.

MR. AYERS: Thanks, Charlie. And thanks for inviting me here. It's certainly a privilege to be with these panelists. I haven't seen Mead in a while, but you mentioned I had been in resources in Alaska and Drew and I both smiled about that. I actually had been in Alaska since the mid '70s, and when I first came to Alaska I was working as a consultant as I am today. It seems to be a hose I can ride, or at least it gets me to where I need to go sometimes, most of the time.

And one of the first projects I worked on in Alaska, I was working on a project to expand economic development in rural Alaska working with none other than the Alaska Federation Natives and Julie Kitka and some others. And we put a windmill in Chevak on the Head Start Center to see if we could generate enough electricity that the Head Start Center wouldn't have to use diesel fuel. And a guy named John

Pingayak, Theresa Pingayak was the Head Start teacher there and it was interesting because if you follow -- it was an idea that came out of the community, of some elders in the community that talked about the wind. They'd seen wind generators and windmills in the mid-West and they were very interested in the idea that wind might be able to get them off of diesel at local Head Start Centers. So I'm going to go to 30,000 feet and then I'll be right back.

But my view of the opportunities and challenges of energy development in Alaska has more to do with who we are as a people. A common heritage of human kind is the question of energy development in the Arctic. It's about who we are now as a people. I remember at Purdue University, a Professor Selchik used to hold his arms out and he says, "Do you know what this is?" I'd say, "No." And he'd say, "That's how long there's been life around the planet, but that's how long we've been around." And about the tip of that fingernail is how long we've realized how much we can do to the planet.

And I also would say that in fairness my clients include the Pew Charitable Trust and Ocean Conservancy and other nongovernment organizations, although I recently finished a project with the Coast Guard and was on the panel to review the Deepwater Horizon response in the Gulf of Mexico.

So let me say that the Arctic is the question of our age. The opportunities are about who we are as a people. The challenges demonstrating that we have the intellectual capability to bring the energy necessary to the people, not only of this country but throughout the world and do no harm, a basic principle of ensuring that we can develop energy resources today while maintaining the health and biodiversity of the Arctic that I won't go into but I'd love to, and the subsistence way of life. Now, that's really what the goal is all about. The various objectives that we've heard talked about are specific things that are siloed somebody mentioned; the silo of silence or the silo of how are we going to do the logistics.

But each of those needs to be integrated. We need to find a way to bring the intellectual capacity of we as a people -- the indigenous people, the local and traditional knowledge, our western science, the best of industry's engineering and capability -- and bring them together first with a discussion with people at the local level and then the national level about how can we do this right? Is there a way to do this? It ought not to be the antiquated way of litigation and adversity. The real opportunity is for us as a people to demonstrate that we can do this but we can do this right. And that includes those things I was just mentioning. By the way, there's a USGS circular 1370 that came out one year ago this week from

the good Department of Interior that identified the science needs of the Arctic. That's not a big question. We ought not to say, jeez, what does that mean? It's outlined in there. We need to do -- and I'll just do a dive now into that. I'll come off of 30,000 feet and go straight into that specifically if you want or I can wait.

MR. EBINGER: Well, why don't you wait?

MR. AYERS: Terrific. Let me play the devil's advocate a minute. A month or two ago, Citibank came out with a very controversial study suggesting that the development of unconventional oil in this country, the combination that over the next decade when the president's new fuel economy standards go into a full effect that will knock off two million barrels a day of imports, three million barrels a day from unconventional oil production in the United States, and the prospect of a big hunk of additional oil coming from the oil sands in Canada, as well as the mandate for ethanol of 36 billion gallons would suggest that basically, according to Ed Morrissey, author of the study, that as early as 2020 to 2025, the U.S. could effectively be importing very little oil.

Now, let's assume that Shell finds a huge oil deposit offshore, which we hope you do.

MR. PHELPS: Thank you.

MR. AYERS: Is there any danger in -- Mead will remember

the battles on trying to lift the ban on Alaska oil.

MR. TREADWELL: Sure.

MR. AYERS: For our allies in Japan. Is there any danger if all of a sudden a large deposit were found but that the market for that oil was not in the continental United States but in the international market that that would become another cause célèbre among conservatives with others who said we shouldn't export our domestic oil?

MR. TREADWELL: Are you asking me?

MR. AYERS: Yeah.

MR. TREADWELL: Well, I don't know. Let me put it this way. I hope his study is right. I believe America is a national resource rich country and that we ought to be developing our natural resources. It's one of the things that the world tends to demand that we make. We're doing extraordinary efforts now to get rare earth elements out of the ground in Alaska to break a Chinese monopoly, for example, and there are things that we should be doing in America more to break other monopolies or other consortia that tend to price against us.

But in this particular case, it may be that he's right or it may be just like Bill Clinton's balanced budget where it disappeared very quickly. But all told, I think where we need to be to understand the Arctic is that when it comes to getting a dollar to drill a hole or to lay a piece of

pipe, we are in a very competitive global market. The companies that are coming to Alaska are the same companies that are going to Russia, the same companies that are going to Canada, the same countries that are going to Greenland or Australia or many other oil provinces around the world. So we have to make sure that our system is set up to receive and incented to receive capital.

The next thing is that if we set up inefficiencies. If we say you can drill for this but you can't ship it, then what we're really saying is, okay, you may still be able to ship it. Alaska oil for all but seven percent of its product, I believe, was forced to be sold in the United States. That meant the construction of a pipeline across Panama. It meant that we took most of the margin from that oil and rather than directing it back into energy investment it went into other activities, such as shipping, that wasn't necessary. You had a situation at one point where oil was going west from the Gulf of Mexico to Asian markets and east from Alaska to North American markets in the same, you know, across the same isthmus.

And I think when you take a look at the challenge that we've had on natural gas, which is not unlike what the ambassador was telling us just a while ago on McKenzie gas, is that whenever we tell ourselves we can't go for world markets we find that we're probably going for the wrong market. So I think it's very important for us to understand that we're

attracting capital from world markets and we're affecting world markets. And frankly, production in world markets helps us all with reducing the price of energy.

Now, some people will say, well, don't drill in Alaska, you know, if you're going to ship it abroad. Well, right now I believe that with what California is taking it's going to be used in the United States. But I will say it would be probably imprudent for us as a country to put up barriers again.

MR. EBINGER: Excellent answer.

Steve, we've heard a lot today about the dangers of land transportation in Alaska with climate change and the melting of the tundra and so forth. Does this pose a logistical challenge if you find oil offshore and have to try to tie it into the Alaska Pipeline with a spur pipeline? Are there ways to deal with that in your mind?

MR. PHELPS: Yes. There will definitely be challenges. We have lease holding in the Beaufort Sea which is, let's say, a bit more proximal to the existing onshore infrastructure in the North Slope. I would say the challenges there are less insurmountable. Just a tyranny of distance isn't so much as the fact that in the Chukchi Sea where we're offshore by about 18 miles then you can envisage that an offshore fixed installation, an offshore pipeline and then depending on the route back

through the North Slope of Alaska and NPRA 300, 400 onshore pipelines, it's going to have significant challenges.

We've heard today about this euphemism we keep calling science and sometimes you need to dig a little bit deeper to understand what science means because it means different things to different people. So we are -- because we are the current, let's say, baton holder in the relay of Arctic offshore development, we are actually spending and driving a lot of the science that is currently being undertaken. And by that I mean it's both understanding the ice, which is fundamental for the offshore as has been pointed out, so we do geotechnical surveys year-on-year. It talks about ecology, biology, oceanography-type science. So out of necessity, because the project needs that, I'm trying to sort of get to the answer is, you know, science will actually dictate what the environment is, what the baseline is both now and as we progress through the next 10 years towards development.

I think we are prepared to co-contribute to the science discussion. We've made data available. We've gone into agreements with the North Slope borough so we're trying to recognize -- someone mentioned the word imperialism earlier I think on the previous panel. We're very conscious of that. I mean, our more than 500 engagements with the local communities and villages in Alaska, it's not about what we

want; it's about what native communities want and what they say the challenges are.

MR. EBINGER: Thank you.

Amy, maybe you or Jim would like to address the next question, although you're welcome if you like. Even absent a major oil spill, there are obviously several ways that oil and gas development offshore Alaska could have the potential to affect the lives and livelihoods of native communities. We have already discussed the potential effects on the sea life that provides vital food supplies for native communities. There are also obviously issues of noise and air pollution. But the effects of offshore oil and gas development will presumably not affect all native groups the same way simply because of where the oil and/or gas might be found. Can you give us an idea of how different native group stakeholders will be affected to different extents and if there are any sizable differences within the native community as to the benefits and wisdom of offshore development?

MS. SPARCK DOBMEIER: I can answer first. Obviously, the first impact would be where the development takes place and what Shell has done, and I think they were right to do it, was to really be on the ground and get involved with the communities. And just by doing that they could learn from maybe not science but traditional knowledge about you

can't put a road there; you'll sink. You know, you can't go that way or that way. Maybe they learn from that. At least they went to the communities and took the time to learn that. And obviously, all communities in Alaska would hope that where there is development, and if it does happen, the companies will perform local native hire. That's the best outcome for especially economic development, especially in much of village Alaska, which can only rely on industry to have a job. Otherwise, there's literally a lack of jobs.

So that's obviously a benefit of development around communities. The benefits to other communities, while oil and gas might not be developed in that region, there's revenue sharing, so it depends on who's involved in the development and it's shared throughout the regions, throughout all of Alaska. So that's a benefit that will extent to all communities.

MR. EBINGER: Jim, did you want to add anything to that?

MR. AYERS: No.

MR. EBINGER: Okay. Mead, go ahead.

MR. TREADWELL: If I can just say one thing about revenue sharing. This issue, the Outer Continental Shelf development in Alaska, does not have the same revenue sharing with the states as the Gulf states get. And when I say that we'd like to see it, it's not because we're trying to

fill our coffers or be more, you know, the blue-eyed Arabs of the north as sometimes Alaskans been described; that it's basically because 90 percent of our state budget, which is to serve rural communities and is to serve all our communities, comes from oil at this point. And we're going to a situation where the Alaska Pipeline or shoreside facilities or connections to that pipeline may well be taxed only on a property tax basis rather than the royalty sharing that the Gulf states have.

And yet what that money goes for is, you know, we're improving schools in 200 different communities right now. We just settled in one more lawsuit to upgrade education. We helped balance the cost of energy in rural Alaska. We have lots and lots of airports where there aren't roads, 200 communities without roads, and to the extent that the welfare of all of us is based on infrastructure, the state of Alaska has been a major contributor in infrastructure for many years from the oil industry, money that we've gotten before. So I think that's very important for the quality of life that we have that.

I was in a meeting last year with leaders of communities throughout the North Slope borough and at that point we realized that the value of the assets on the North Slope are about $16 billion in a depreciated value. Then you go take a look at what we're trying to get to. We're trying to see heavy oil developed at the existing fields at Prudhoe

Bay. That's a $20 billion project. When I talk about natural gas and how we're now moving toward alignment on how we would go for an L&G project, that's a $30 billion project if it's a dime. We've got what Shell has spent already, which is about $4 billion, but if you get success in anything toward that 27 billion barrels or the 700,000 or 800,000 barrels a day, you're talking about tens of billions of dollars. So we have to be prepared to attract investments but just know the benefits from that investment will be shared dramatically with communities in Alaska, as well as have a major payback for the federal treasury.

MR. EBINGER: Jim.

MR. AYERS: No one that I know is a better evangelist for the benefits of the resources of Alaska than Lieutenant Governor Treadwell. He's knowledgeable. He spent a good part of his life living and learning about it and he does an excellent job.

My view of this question, the original question about the impacts of a spill, I was the executive director of the Exxon Valdez Restoration Plan and spent four years of life there, and then I was recently involved in the Deepwater Horizon. The reality is, and let's make it a little broader than just energy -- there's transportation that Mead also does an excellent job of explaining far better than I can -- we're talking about resource development in the Arctic and the incredible benefits that will

accrue to all of us Alaskans, but also the nation and the Arctic countries.

But somehow we have not yet involved the people in public participation. We don't go into the communities and sit down and talk with them about where are the important iconological areas and the subsistence areas. This is where we're going to drill. How can we do this safely and protect these areas? We don't say to people in the villages here are the risks. We leave that to others and then have a dialogue with elders about how do you feel we could do this. And then I've got to tell you that the response means having trained personnel and equipment in the region, onsite, capable of handling the worst case discharge. That's what it says in a national contingency plan.

We need to talk to people in the communities and the nation about knowing that risk upfront along with those benefits, and assuring that we're doing everything possible. And that means investing and identifying those important ecological areas, bringing indigenous people together, and making sure to identify subsistence areas, and having that information so that we can answer a question like yours with a monitoring observation and research program that says here's the risk, here is who will be impacted, as well as here are the incredible benefits that you're going to get from this risk. Then we've got a dialogue. But we don't have -- we need a new paradigm. The outworn, antiquated approach, although

we shuffled the cards a little bit in the Interior and this administration's done a great job of moving science into the forefront to drive decisions, now we need to do a little better job of bringing people to the table to help in that decision to talk about benefits and risk.

MR. PHELPS: I feel like I need to refute one of those comments. I think there are a lot of good points in there but at least in terms of our community engagement, I mean, we have taken on those conversations. We might have been guilty of it in 2006, 2007, having a bit of a Gulf of Mexico centric mindset that, you know, we'll just roll in and do this, but ever since then I would push back and say that in these 500 community engagements that we have respected traditional knowledge and actually looked for food security, subsistence, you know, respect. So I just push back on that a little bit.

MR. EBINGER: You should be commended for that.

MR. PHELPS: (off mic) the public domain quite as much as it should.

MR. AYERS: I'll just say one thing just to respond to that and it'll be very simple. If, in fact, I'm talking about an investment that would say to people you wouldn't have to quarrel with me any longer. We wouldn't have this business of you suing the environmental community or the environmental community suing you. You would be able to turn right

now to a map and you would say let me show you what the elders taught us about the important ecological areas and let me show you how they are protected. And let's now work with the administration. Here are the deferrals and here are the designations of those marine-protected areas that will not be damaged or harmed, and we're not going to drill there because we can do directional drilling and we're going to invest X amount of dollars. You wouldn't have to have this. You would be able to do that, and it will come. That's the Arctic paradigm I'm talking about. We're capable of doing that. And under the -- you are a corporate citizen. You are now under America's laws. You are a good citizen, and we are now in this together. It's not like the old days. And in the Arctic, we're going to be in that together. And that's what I'm talking about.

So I think you've done a great job talking to the communities. There's just one more step and that's where you could just turn around and say let me show you what the elders taught us.

MR. PHELPS: If you could convince me it was only one step I'd be happy. (Laughter)

MR. EBINGER: Mead.

MR. TREADWELL: The oil won't go anywhere. Jim Ayers and I have been friends for a long time and Jim, I worked with you on the Exxon Valdez and so forth. But let me talk about this paradigm just in a

second. I got an e-mail this morning that today we lost Elinor Ostrom, the Nobel laureate who actually was a political scientist but won the Nobel for economics for working on the comments problem, and that was the problem the Garrett Hardin (phonetic) in 1968 had in his famous essay talked about the tragedy of the commons. And Hardin basically, if I take the academics, it said, you know, because of the tragedy in the commons you often need a government leviathan to sort out who gets what. And Ostrom came along and said, unh-unh, that's not what you need. What you need is lots of communication and cooperation. And she's special to us. In Alaska, her husband, Vincent, who she was a student of -- this was a professor who married his student -- was hired to help draft the natural resources clause in the Alaska Constitution. And the Alaska Constitution makes it very, very clear it's important for us to develop our resources for the benefit of the people. And we live by that constitution. We try very hard.

But Elinor Ostrom's concept that you need communication, that you need cooperation, that you need science I think is one that I don't see anybody on this panel has not bought off on that concept. And one of the things we learned during Exxon Valdez is that when somebody who spills oil doesn't even know the fishermen are there to help them clean it up, we've got a problem. We had the eight Arctic Nations meeting in

Anchorage this Spring and we worked very hard to bring them to the United States to say, listen, we want you to know the people here in case there's a problem because we're all going to have to address this together.

And, you know, Jim, I'll just -- I'll join the refutation in one respect. We've done lots, and a lot of it was to your work in getting community science centers up and down the coast of Alaska. The fishing groups have added to that. Now, Shell has been supportive and we're trying to get more oil spill research directly in boroughs so that people can see where we're moving the cutting edge and learn from traditional knowledge. We just passed a rule to try to save languages in Alaska because when you lose a language, you lose history, you lose, you know, we've reconstructed the science of the caribou herd. The Central Arctic caribou herd based on language and place names because we didn't have written record.

So I think we're all on the same page and ultimately, the biggest challenge I think some of these new ocean policy initiatives have had in the Arctic is building a level of trust that it's going to change the permitting for the better rather than stop everything to go get something new done. And that's the fear that most Alaskans I talked to have and that's why it's been a little slower than maybe you would have liked.

MR. AYERS: I understand.

MR. EBINGER: Amy, let me throw that same question to you. How do you feel the oil industry has done in terms of interacting with and soliciting the views of native groups?

MS. SPARCK DOBMEIER: I think Alaska is unique in that today, if there is going to be development, it's just going to be so obviously stark that there would be development in a rural isolated village, that it is absolutely important for a company to get involved with the community. There has to be trust and exchange and transparency and rather than have people have a perception that natives would be diametrically opposed to development, Alaskan natives are very adaptable. They have to be. That's how they survived over 10,000 years in that harsh environment. You also have to be pragmatic. There is going to be development and the best you can hope for is economic development for your people, for your region.

So the best thing to do, like Shell did, and we can point to that, is community engagement and to show really the scope of what you plan to do, what you want to do, and ask the community for their thoughts and for their traditional knowledge and suggestions, and maybe make a community plan and just be involved.

MR. EBINGER: One final question for the panel and then

we'll go to the floor. We've heard about projections if we look 10, 15 years out and, of course, if large scale oil were found it would maybe become even a faster problem, and this is ship congestion in the Bering Sea and the Bering Strait. With the unresolved border issue with Russia, I'd be interested to know do you as an industry or do you as a public official, do you have much interaction with your kind of counterparts directly across in Russia about what you would do jointly in the event of a major oil spill or a maritime accidents, ships colliding? Or is there pretty much no immediate cooperation or even discussions with your neighbors?

MR. PHELPS: Maybe I'll answer from our recent experience. I think the blunt answer is no. I mean, everything is basically in U.S. federal waters and territories. Most of our evacuation that goes through the Chukchi Sea or Bering Sea is icebound for five or six months of the year so if an idea or mental model people have is that more tankers exporting the oil, whether it's to West Coast U.S., which is probably where the refining would get done that's not the development model we have. I mean, we're trying to support the TAPS infrastructure and keep it alive for another 40 or 50 years.

MR. EBINGER: But as we hear about more and more ships of all kinds potentially coming along the northern sea route and down to Asia through that passage, do you think this is an issue that more needs

to be done between Alaska and local officials in Russia?

MR. TREADWELL: Yeah. Charlie, I can tell you I'm one Alaskan who I can't see Russia from my house but (laughter) I have seen Alaska from Russia many times. The fact that Julie Gourley is here, who was on the last panel, Julie, you and some folks from the Coast Guard recently returned from Moscow where you had a meeting with the Russians on the Port Access Routing Study. And one of the reasons why I believe it's very important that we hitch up with the Russians sooner rather than later, even before there's a lot of traffic, is because this is going to be such a vital waterway for energy from probably six nations of the world going to many more than six nations. Even when the Renda, the Russian vessel came to help bail out the people of Nome, we had certain things that we wanted to make sure that they were aware of -- that there were nesting zones, that there were subsistence zones. We've moved the track of the Coast Guard vessel Healey to the west to avoid whales when it was going there. And the more coordination we have in this tight spot from the very beginning, the safer shipping is going to be and the more we can affect and preserve food security. So it's very important that we get to that joint agreement with the Russians in my mind soon enough so we can take it to the international maritime organization.

We've urged -- the State of Alaska has said again and again

that there's a great inequity between what we ask of Shell on ship safety in the Arctic region and what we ask of the rest of the world. The ships passing through don't have to tell us they're coming. They don't have to tell us what they're carrying. They don't have to tell us what their contingency plan is. They don't have to meet the locals who might be helping them clean it up. They don't have to listen to us if we say please move away from here because they've got whaling here. And we've already seen the problem with that. We have 5,000 ships a year go through the Aleutians and we have occasional wrecks, like the (inaudible) that, you know, show us there are those risks. So we're trying to address those risks early and I've got to compliment the Coast Guard for taking that on and compliment the fact that we do have regular bilateral with the Russian Coast Guard, very good lines of communication. We have joint enforcement of fisheries in that area. It's a multi-billion dollar a year fishery, so we police those lines fairly well together.

I took, you know, it was tough for me. The last flight I made with the Coast Guard and the Russian Coast Guard through the Bering Strait, the Russian admiral brought out a bottle of vodka and I was the designated person to do the toast because the admiral wasn't going to drink on his own airplane. (Laughter) But I will tell you this, the communication is strong. We're just coming up to the 25th anniversary of

opening the border between Alaska and Russia. It'll be June of next year and that happened under Governor Cooper. And there's lots that we had hoped for with that open border. There's lots of good things that have happened. I can show you many children on both sides of the border who are products of the fact that we have an open border, but there's much, much more cooperation we have to do.

MR. EBINGER: Let's go to the floor and please, again, identify yourself when you ask a question. This lady over here. The lady on the aisle about halfway down.

SPEAKER: (off mic) from Bloomberg News. I keep hearing that there is very little infrastructure on the north coast of Alaska. So I have a question for Steve. How much Shell has already done in terms of adding hotels, roads, and how much more development will we see if indeed the government gets the permits this year?

MR. PHELPS: Are we taking them directly?

MR. EBINGER: Why don't we take a couple and then we'll -- yes. The mike is coming over to you.

MR. WARREN: Rob Warren. I have a two-part question. Charlie, you raised in the last panel the issue with the price of natural gas falling in the United States, is it feasible to develop natural gas in the Arctic. Would you like to respond to that yourself?

And Governor, is the Coast Guard sufficiently stocked with vessels and capability that you need in the Arctic?

MR. EBINGER: All right. We'll take one there.

MR. JONES: Yeah, Bill Jones, EIR.

Governor, I'd like to ask you with regard to the relations with the Russians in the Russian press there's often comments about building a Bering Strait tunnel and they're actually building their railroad up to that point where the tunnel can be built. I was wondering has that come on your table at all? Have you seen the proposal? Have any initiatives been taken? And what do you think of it?

MR. EBINGER: Why don't we take those three.

MR. PHELPS: So on the question of the infrastructure, we're dominantly offshore so we obviously have to put a huge dominantly floating fleet in place, both to support deployment of the rigs, ice management vessels, oil spill response fleet, resupply, et cetera. Most of that obviously has to sail up essentially through Unalaska and Dutch Harbor from the West Coast of America. There is also a, what we would call, supply chain of logistics that getting the people and the materials and crew changes done through both Barrow and Wainwright have allowed some provision of infrastructure investment. So the one that would spring to mind would be around airfields, hangars to support search and rescue,

helicopters, for example.

It's a means to an end in that respect. I mean, we've got to get our program properly supported because as we talked about this morning in the closed session, we recognize it's remote. You know, we recognize it's hostile. If it needs to be there we have to bring it. We do get a lot of support from agencies like the Coast Guard. A lot of the regulatory inspections that are going on as we speak now of all of our kit, I mean, they will form a fundamental part to make sure that our logistics and supply chain are really ready to go.

MR. EBINGER: Do you want to do the tunnel?

MR. TREADWELL: Let's save the tunnel for the end. Let's talk about gas for a second.

MR. EBINGER: Well, we did -- Brookings did a study that came out about in early May where we looked at the feasibility of L&G exports but from the lower 48 states. And this was because, of course, some of the people who were planning to import L&G, now that we found so much shale gas see no market and are applying to the federal government for permission to convert those facilities to export facilities. But you have a lot of very powerful interests, such as the petrochemical industry and chemical industry and others who believe that shale gas offers incredibly cheap feedstock for their industries. They're talking about

bringing those industries back from overseas, producing good American manufacturing jobs. And so they're worried that exports might send prices back up.

In our study, we concluded that there was plenty of gas to meet the needs of the manufacturing sector to back out 45,000 or 50,000 megawatts of old coal-fired plants and still have gas be available for export without a significant impact on the American consumer either for gas prices or for electric prices. But in that same study, what we showed was that between now and 2020 there will be a shortage of L&G in the world, in the Pacific market particularly, and that the people like Sahanir, who have gotten in early, when their project comes to full fruition about 2017, they'll do very well. They should do very well because of the arbitrage play between the low price of the Henry hub in Oklahoma and the world price in the Asian and to a lesser extent, European markets. I mean, right now you've got gas selling for $16 to $18 in Japan, and if we could export gas right now we could probably get it delivered, re-gasified for $10 plus or minus. So there's a huge arbitrage play right now.

But after 2020, the market tightens considerably because you have huge projects coming on in Australia. You've got the possibility of the large gas finds that have been discovered along East Africa beginning to come into the market there. You've got coal, barring a global

price on carbon, remaining very competitive in the Asia-Pacific market and for electric power. But they're wild cards. You know, is China's shale gas going to prove to be economic or not? You know, it's in areas that are water constrained. But if China can all of a sudden produce a lot of shale gas, needs less L&G, that's a big factor. Is Japan going to continue to keep their nuclear power plants closed? You know, big surge in L&G demand has occurred since Fukushima because of Japan shutting down all of its nuclear reactors.

So when you start looking at an L&G project from the North Slope say, it's going to be very dicey in that timeframe of probably 2020 to 2030. That's not to say there may not be a market. There are so many things that could happen. But I don't see any market for that gas in the lower 48 in any feasible timeframe, probably out to 2035, 2040. But in the world market there may be a demand.

MR. TREADWELL: Let me tell you what we're doing because I think the view that Charlie put out is pretty similar to the view that we see and the view that the three major producers on the gas. First off, there are people in this room who have dedicated a large portion of their lives. I'm looking at Senator Pearce over here in trying to bring natural gas to North America. And we have a project that we licensed under Governor Palin with TransCanada that is done. Substantial

engineering, substantial cost estimating, substantial permitting, and those permits remain in place. If something dramatic happens in the North American market -- in my career I've seen it now happen twice -- we would be ready to ship to that market.

At the same time, we have brought the three North Slope producers together in January and then they sent us a letter in March that said that they hoped to find alignment by the third quarter of this year on how they would pursue an L&G project in Asia. And whether that's a $2 billion cubic foot a day project, 14 to 18 million tons a year, whether it's one that would aim for markets in the 2018 timeframe or really not get there until 2022, 2024, those are some of the questions that we're looking to answer right now. But I can tell you we've heard from Japanese buyers. We've heard from new independent power producers in Asia who see an opportunity. I was in China where this was something the premier brought up in a meeting with us last fall. So there's definitely interest in our gas.

And I'll just leave you with this on that subject. In the last 24 hours, we took 8 billion cubic feet of gas out of the ground and we stuffed it back in the ground. Okay? We did it to keep up pressure on the oil to come through. And yeah, you do need pressure on that reservoir for the oil to come through. But at the same time there are a lot of other oil wells

back there that we choked back to virtually nothing because they were producing too much gas with their oil. And until we get gas infrastructure off -- figure this. If we got 35 trillion cubic feet of gas that we know of under our slope, it was all found by accident. It was found by people like this guy who were looking for oil, not gas. Okay? And until --

MR. PHELPS: That's a compliment, huh?

MR. AYERS: Yeah. No, and until we find a way to get the infrastructure off the slope, we've got a problem. And the whole potential that you've been listening to today about the Arctic has got a problem. So it's very important that we solve this mystery one way or the other and we're working very hard on it.

MR. EBINGER: Did you want to do the tunnel?

MR. TREADWELL: I'm going to do icebreakers and the tunnel.

The state of Alaska supports the construction of new Coast Guard icebreakers. I have to say our congressional delegation, Bob King, is here from Senator Bagich's office. We have a group of people from Senator Rakowski's office here. The Alaska delegation is all working together and we're very glad that this president and it's something that has been chewed on. The Arctic policy, before it came out of the White House in 2009, one of the major food fights was (inaudible) the sea and the other

was icebreakers. And the question of do we as a nation recognize we need new icebreakers. I think we've come to that realization.

The Alaska coastline is more than the rest of the coastline of the country put together. You know, an admiral said to me the other day, "I'm not sure we can afford icebreakers." Well, I said to him, "I'm not sure we can afford California or the Louisiana Purchase either but this is America and we have interests and we do need to protect them." (Laughter) We also have ship traffic coming through that very honestly is not regulated and not regulatable and needs to be policed. So we're pushing for it, and frankly, I think it would be a shame if we dismantle the icebreakers we've got, or one of the icebreakers we've got while we work to build the others.

On the tunnel, thanks for the question. I made my first trip across Russia with former Governor Hickel in 1981 at the height of the Soviet Empire. And at that point I remember we got a briefing on the tunnel then and I've had many since. We said, you know, this may not happen in our lifetime but let's keep talking about it. What's fun about it is this. One, if we don't recognize the geography, we lose a lot else in translation. Russia is a neighbor. You can laugh at "you can see Russia from my house." You know, it was a good laugh line for Saturday Night Live, but the fact is that we do have proximity and we have lots of common

opportunity.

And the Russians have now extended the Trans-Siberian Railroad pretty much to the borders of Yakutsk. They sent a delegation to Alaska in the last year looking at a bridge or a tunnel into Yakutsk and it's part of a plan moving toward the Bering Strait. The State of Alaska has done feasibility studies on how to hook up the Alaska Railroad to the North American system because frankly, as we see the Port of Prince Rupert moving north, there are other, you know, the fact is West Coast ports are crowded and we may well be one of the best ways to come in from the Pacific to North America. I don't know who's going to pay for that last 1,000 miles of rail or that tunnel, but I will say in terms of the bigger schemes of things we are seeing transportation advance. We do have roads to resources where we're looking at a road connection to Nome now and, you know, it never hurts to be imaginative even in a session like one of Brookings. So thank you.

MR. EBINGER: Jim, did you want to --

MR. AYERS: I just want to -- well, first of all, I always want to commend my friend Mead, and of course, both of us at different times and sometimes at the same time we're under the wing and influence of good Governor Wally Hickel. And of course, when I was running the Marine Highway, he wanted to combine the railroad and the Marine

Highway and wanted to know what it would take because he wanted to get a ferry out to the Bering Straits until we could get the tunnel built. So he had an idea there.

Let me go back one moment though to the paradigm because, as you know, I won't leave it alone. We're in a new world. You were talking about shipping need. And you know, there were over 5,000 ships this past year, although the Coast Guard has not released an actual number through the great circle trade route. You mentioned that Salangdang IU and the risk every day is of vessels going up through Unimak Pass as you know, and across the Aleutian Islands there. There's another situation where under this new paradigm it's in the interest of corporations who are paying their fair share and so forth to have some standards, Arctic standards that everybody has to live by. And under this I'm going to mention there's a new coalition forming in the Arctic paradigm.

The United States military and the NGO community -- certainly the Pew Environmental Group and Ocean Conservancy and others have an interest in seeing corporations and the military and the state of Alaska all are interested in protecting that shipping byway through identifying those important ecological areas and find a way where we could agree on how to protect them. And I'm not suggesting anything

about an ocean policy or any of that stuff. I'm not going down that route. I'm talking about one thing, important ecological areas and working with communities. I don't have that other hidden agenda that you might think.

I think the same is true of gas. There is a common interest in conservationists, the industry, the military, the state of Alaska in getting that gas to market one way or another. And I think there's a new coalition building for an Arctic paradigm that puts previously nontraditional allies together to promote things that have to do with sustainable development in the Arctic. And I just want to say that's what I mean by an Arctic paradigm and I think that we can get there and I think we see paths differently. I don't think the old way will work. I think we have to have a new way. I've heard -- I can't tell you how many political speeches, including my own -- about, you know, we're going to have the first shovel of dirt on that new gas pipeline and we've all lived through that. But we could do it together I think and that's what I'm proposing.

MR. EBINGER: Some other questions from the floor? Way in the back.

SPEAKER: Governor, or Lieutenant Governor, I don't know what the right terminology is, and Mr. Phelps, first question and I have a point. How much of this new oil and gas development is dependent on the existing level of sea ice retreat? And how much of future oil and gas

development anticipates further sea ice retreats? You're very bullish about the future and the long term, so how much of that in your mind or in reality is dependent on the fact that the Arctic has warmed so substantially and the sea ice has already retreated significantly and is projected to do so?

My point really is for the moderator. I think both panels have sort of missed a critical element here, which is the common heritage is really related to the climate system. And it involves Greenland, which has enough ice, six meters worth of ice. If it all goes it will raise sea level six meters. If the sea ice goes, it changes the entire reflectivity of the planet, as well as massive habitat loss. And will change, and is already changing mid-altitude weather. So I think maybe there's a real discussion about the global importance of the Arctic, not its importance so much to Arctic nations alone but to the whole planet because, in fact, Miami is dependent on the fate of Greenland because of the sea ice problem.

But I want to go back. My question is how much of the oil and gas today do you feel is dependent on sea ice retreat and how much in the future?

MR. EBINGER: Thank you for an excellent question. Yes.

MR. TUCKER: Michael Tucker with the Center for Climate and Energy Solutions.

Similarly, climate change, as was just mentioned, is offering us a huge opportunity in the Arctic for energy development. Climate change elsewhere in Alaska is causing some challenges, whether it's migrating fish docks, changes in forestry patterns, coastal erosion. And there's clearly going to be a huge, tremendous amount of investment and resources and attention given to energy development in the Arctic. I just want to know how are Alaskan corporations, Alaska as a state government and Alaskans themselves looking to make sure that some of those resources, investments, and attention also go towards mitigation and adaptation of climate change challenges in the state?

MR. EBINGER: I think those two questions give fertile ground for some discussion before we come back to the audience.

MR. PHELPS: So are we banking on further sea ice retreat in terms of our plans for oil and gas development? No. I think we've seen that it can be a little bit misleading to say that we've had the sea ice retreat in total area or in total volume. It also depends where it is in the Arctic. It's a big place. So there is almost a glorious irony that this year, of course, we have more multi-year ice in the Chukchi Sea and the Bering Sea than we have had for the last 10 or 12 years. It's just the year we're trying to get there.

What I've observed, and I'm a complete rookie. I'm an

Australian with a desert background rather than a frozen north Arctic background. What I've observed in the three years I've been doing this, there is huge volatility. So prediction is actually incredibly difficult even to within, you know, plus or minus six weeks. Sea ice thaw in any given area, when the sea ice refreezes in the fall as well. So I can genuinely say, I mean, we're just not that clever quite honestly. I think Shell has a nice in-weather forecasting capability that it's developed now over 20 plus years since we actually drilled in the Chukchi Sea back in 1989. Was that 23 years ago? And we've kept statistics over that that I would argue is probably, you know, as good, if not better than what NOAA possessed for those high latitudes there. And there is just this huge volatility. So we don't see any patents and we're not banking on it.

MR. TREADWELL: From my own experience as chair of the Arctic Research Commission, in listening to the a lot of science, I think I'd say that what's happening with shipping, what's happening with oil and gas is not dependent on sea ice receding. You're seeing global demand and you're also seeing improved technology. And you're seeing that in shipping as well as in the oil and gas side.

When it comes to the services, you know, Raif, I don't know if we've met but I've read your stuff for years and I think it's very important that we understand the very valuable services the Arctic provides to the

world. With albedo and ice reflectivity, with biodiversity, with two of the richest fisheries in the world, with the concerns that we have about ocean acidification with climate change, the concerns that we have about erosion, all have led us to kind of a policy of supporting research and supporting adaptation. There are some of these things that if the scenarios play out they're going to be very, very hard to adapt to.

But at the same time, you know, the world is using oil and gas today, and we believe this is, you know, an appropriate, efficient place to get it. So I would just leave it at that. And I hope I'm answering your question, too, Michael. We've spent a lot of time. There was a subcabinet created now about six years ago, six or seven years ago, which has developed an adaptation agenda for the state. We're working to move -- working in consortium with villages. I'll tell you, that oil spill that happened this week was an Army reserve ship on its way to help a village move there, so there's lots of activity going on in response to changing climate and lots more monitoring and research that we need to invest in. And whether or not we can change it, I think the Arctic Council countries back from the time of the Arctic Climate Impact Assessment looked to say is there something the Arctic could do alone to reserve this trend? And I don't think we saw it. We focused a little bit on black carbon, and that's something which is pretty important because it may help explain some of

the rapid changes that we're seeing in the Arctic today. And we want to see cleaner vessels. We want to pay attention to that, and I think that's an important project to the council. But in the meantime, I think you will hear from most start-up jurisdictions that we're working hard to adapt.

MR. EBINGER: Jim.

MR. AYERS: Yeah, I think the albedo effect, other things that Mead just mentioned, you know, as goes the Arctic, so goes the planet right now. And I think we're now all beginning to realize how true that's going to be in lots of different ways. As goes the Arctic, so does the planet with regard to this issue of climate change. It's been the icebox. It's cooled the planet, et cetera. But it also means that as goes the Arctic, so goes the planet and how we as a people are going to deal with the question of the extraction or providing of energy for 7 billion people going to 10 billion people. And that's a hell of a challenge that we all have. But it's going to be as goes the Arctic, so goes the planet.

MS. SPARCK DOBMEIER: I'll make a comment, too, Charles.

In terms of climate change, there are elders and people of the next generation or next two generations, my age, that have seen it happen in our own lifetimes. And it's astounding actually. The Army Corps of Engineers' ship that was shipping equipment to help Nukdok.

Nukdok is just about on the Bering Sea. They're sinking and they're being eaten away by their river and they have to move. And they're actually in the process of moving. So it was actually core equipment that was on its way that got stuck.

And that was kind of a timely article, I guess, because it highlights what villagers and natives hope, you know, corporation, companies like Shell and the Corps of Engineers, would be prepared for is if you run aground or have a spill, are you going to be ready for it? And is it right to thank God that they hit a rock in Kodiak right where there is a Coast Guard station? But it just goes to show it happened there at Kodiak. Thank goodness. Villagers need to be assured that there's going to be quick response all the way up the coast because having as much coastline as we do it's odd to think that we don't have a lot of deepwater ports. Try to imagine the coasts of the continental U.S. with maybe just a handful of ports. So that's what a lot of villagers are also hoping and looking for is the ability to be just at the same standard of operation as other countries.

MR. EBINGER: All the way in the back. Two all the way in the back. We'll take one and then the other one.

MR. MASSY: Thanks, Charlie. Kevin Massy with the Energy Program here at Brookings.

I've got two questions. One is a broad question, and the other is a specific one.

We've heard a lot about cooperation to the Arctic Council. But as we saw in the Gulf of Mexico Macondo blowout, often it's industry that has the technical ability and the knowledge to respond most effectively to oil spills. Earlier this year there was a response technology joint industry program that was set up with several major international oil companies. I'd like to hear the views of the panel on organizations like that was taken forward and being the most effective means of responding to spills and how lessons learned in Arctic U.S., i.e., Alaska, can serve as models for drilling and energy development elsewhere in the Arctic.

The second question is more specific and it relates to -- and it's probably more for Steven more than anybody else -- but presumably if oil is found in large quantities this summer, that will lead to greater exploration which will -- and combined with the sea ice retreat, presumably more seismic activity, mapping of the region using seismic arrays will take place. Can you talk about the effects of that seismic activity on sea life, bow whales, and so on? I understand that there is the potential for seismic to really disrupt the activities of key sea life in the region. Thank you.

MR. EBINGER: Can we get the one back in this corner?

We had a hand up.

MR. CHANDLER: Hi, Mark Chandler, New Vegas. I'm also a desert rat from Las Vegas, Nevada.

Listening to your discussion about oil and gas, what opportunities do you see for renewable energy development so that you can, you know, have other sources of energy?

MR. EBINGER: Great. Who wants to start on those?

MR. PHELPS: I think there were a couple in there that you asked in particular, Kevin, as well as the gentleman here. So I think the capability we've built in oil spill response, which is very much in the public domain at the moment, does tend to neglect the amount of work that we actually do in prevention in the first place. The best thing to do if you don't want to clean up an oil spill is prevent it happening. So in terms of calibration, in terms of planning, in terms of monitoring, in terms of multiple barriers to ever prevent oil getting out of the subsurface, God forbid, into the ocean and the nice conditions, this isn't just Shell. I think the whole of industry has undertaken a huge amount, stimulate post-Macondo. A huge amount of technology advances and research.

I would say from our perspective that we've probably gone what I would say above and beyond the regulations demand. So there was a new save of NTs that came out that we had to meet that described

worse case discharge and it really was the worst of the worst of the worst. Very difficult to actually see and envision it actually happening. And yet, to be honest, we've also volunteered a capping stack, a containment system at 100 percent Shell cost at the moment as well. So the prevention side is very important.

The answer to your question, I think the sort of joint industry projects that are trying to further the science of oil spill response, not so much in open water but in those sort of shoulder seasons where we could be drilling and there's very unlikely an event of an oil spill when you've got slushy ice forming. That's where these JIPs are sort of testing technology. They're looking at modeling trajectories in various parts of the world, not just Alaska. They're looking at the various effectiveness of responses in ice conditions. We have a gentleman called Peter Velez, who some of you may know is probably one of the world experts on essentially oil spill response, not just in Arctic and ice conditions but around the world. He's the chair of this none company joint industry project. It's multi-year. It will include field trials. I think that's one of the most important things. We can all do a lot of mathematical modeling and spreadsheet work, but you actually need somewhere where you can demonstrate the effectiveness of these techniques on a sort of a pilot controlled basis. So completely weighted to those.

Can I just answer his second question while I'm in full flow? You sort of mentioned extra exploration if we've successful. So we do have quite a portfolio if you like, particularly n the Chukchi Sea but also in the Beaufort Sea. You know, we didn't bid our $2.1 billion on leases because we were being generous. You know, we wanted to be competitive. We wanted to win but we saw significant potential and that does go way beyond the six wells that we've been trying to drill for the last few years and that we currently have permitted for this year and next year.

I actually think there will be quite an internal debate within Shell and the industry and the local communities and the state of Alaska that if we had a very big success justifying going looking for more big success when we really should be focusing on bringing that to the benefit of Alaska to create local jobs, I think that would be a much more demanding situation that perhaps drilling more exploration wells. So the jury is a little bit out on that I think about how we balance -- what we'd call appraisal. This is future exploration.

On the seismic activity, we're very cognizant of let's say cumulative impact. So we are, if you like, not setting a benchmark but I think the perception is that if Shell is drilling with two rigs in the Chukchi Sea or one in the Chukchi Sea and one in the Beaufort, that's setting a bit of a mental threshold that people think that's what should only be allowed.

Probably not fair to people who have spent $2.1 billion to think that we probably need a little bit more parallel activity. I don't think it's unreasonable to expect that we could prosecute the whole of that portfolio. But again, to be seen. Someone wished me success with the wells this year and we're certainly helpful.

MR. EBINGER: Anybody else want to comment on any of that?

MR. AYERS: Yes, on the response question that Kevin raised originally, you know, for six months I was in the Gulf of Mexico, part of the panel reviewing the preparedness and response capability. And I think you'd agree with this, Steve, we weren't really prepared. All the talk of the Exxon Valdez, it was -- it was very difficult emotionally to be a part of that. We know that as long as there have been oil wells drilled or there's been ships, there have been accidents. And I think that's something that we have to be concerned with. We also know that we can't clean it up very well. I mean, I don't know. I don't mean that in an argumentative sense. We know that less than 25 percent was cleaned up in the Gulf of Mexico. We know that we've got to do better. And I'll go back to standards and one other thing in terms of the new paradigm and Mead talked about this earlier. We need to do more research. We need t und some science and research. And I'm not talking about stopping

drilling while you're doing that. I'm talking about investing and monitoring observation research. OSRO, oil spill response organizations responsible for responding, there ought to be Arctic standards. You have them for the Great Lakes. We now are developing them for the Gulf of Mexico. And I just recently was asking somebody from the Coast Guard. We don't yet have that and I'd love to work with you on that, Mead. We ought to have Arctic standards for response, and we don't have that yet. There are some things that we could do a better job of because we know the risk is high, the probability is high.

MR. EBINGER: Do you want to add anything?

MR. TREADWELL: On that issue of the renewables question, on this issue, in the Oil Pollution Act of 1990, that you passed Senator Warner after the Exxon Valdez, we committed ourselves as a nation to a research program that included a regional research program. The Coast Guard that was put in charge of it had two guys in Groton, who after a couple of years had virtually no money to grant whatsoever, and it was only about two years ago, in fact, it was just before the Macondo incident that the interagency group, Ikopar actually started meeting again. We now collect 8 cents a barrel for every barrel of oil used in this country, and some of that money every year ought to be used to help push the envelope on oil spill response.

And what Jim talked about, Arctic standards, we have a group meeting in the Arctic Council right now on coming together with better standards on prevention and response. It's meeting this month actually in Iceland and so there is a forum there to try to make that happen.

Julie, if I'm missing anything, let me know.

On the renewable, the question asked from the fellow from Las Vegas. I've forgotten your name but I apologize.

MR. CHANDLER: Mark.

MR. TREADWELL: Mark. We have a goal in the state of Alaska to get to 50 percent renewable electric power by 2025. And our portfolio to get there includes hydro, new hydro, wind, geothermal, tidal, and probably some other things I haven't mentioned there. Just looking around the Arctic and the benefit of the Arctic neighborhood is very interesting. Watching Norway, which as a policy of produce hydrocarbons for sale and try to use as much renewable as you can domestically, now looking at export of renewable through DC cable to Holland. Greenland and Iceland are looking at the potential of DC cables to export power. There's a project in Southeast Alaska that's looking at trying to export power to the North American power grid.

I was with a group of lieutenant governors meeting with the

secretary of energy by telephone the other day where we were talking about strategy of renewable, especially a large number in Alaska. Basically, thermal potential projects are in places where there's not a whole lot of demand for the fuel. So finding ways to move that fuel around, whether it's hydrogen or ammonia or, you know, bringing facilities there are questions. But I'm very enthusiastic about our renewable energy potential. There was a meeting that David Hayes, under deputy secretary of the interior had last week with a group of Alaskans on this.

And I can tell you that what's pushing us here is we are one of the most expensive places in the world for energy outside the rail belt grid between Anchorage and Fairbanks. And even Fairbanks is hurting very bad. And as a result, we're one of the best proving grounds for renewable energy in the country. And that's why you've seen adoption of wind diesel, for example, in Alaska higher than all of Canada and we're leading the world. And we are going to continue to push to lead the world with significant investment. And last but not least I shouldn't -- there have been years where our budget for retrofitting buildings using conservation has been higher than the entire U.S. budget. So we're interested in that as well.

MS. SPARCK DOBMEIER: I'll speak to renewables also. I worked with the Alaska Village Electric Cooperative (AVEC) and they

handle 53 villages throughout Alaska, mostly along the Bering Sea coast. The first success story of displacing standalone diesel-burning power sites was Kasigluk, and that's inland. It's not on a river. So their best renewable resource would be wind, so they integrated turbines with the diesel-burning site. And they were able to integrate power into there and make tie-ins to it in Nopachuk and another village. And the board of AVEC is made up of villagers from their villages and their goal, about the same time as Alaska's goal, was to reduce diesel -- generating power through diesel burning generating sites by 50 percent. And right now the most powerful resource for that, renewable resource, is wind. And Kasigluk, about four years ago, five years ago, was able to reduce burning about 65,000 gallons of diesel. And that's a huge success considering that most of these villages rely solely on burning diesel to generate power.

MR. EBINGER: I want to thank our panel. I know the governor has -- I think you have a plane to catch in the not too distant future. I want to thank all our panelists for an outstanding session. And before closing I'd like to also thank a number of you, without naming you individually, who were extremely helpful in identifying critical people that we should have at our session today. Thank you very much.

As I mentioned, this is the first in what we envision as a number of panels and symposia dealing with various Arctic issues. This

was kind of a big macro view and we'll get down to more select issues in the future. But thank you all very much, and I particularly want to thank members of my own staff, Kevin Massy and Govinda Avasarala for the hard work they put in making this a bang-up forum. Thank you.

(Applause)

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